

Inside Dope

By GEORGE
F. TAUBENECK



Learn to live and laugh —
thus delay your epitaph

Stories of the Week
Dream Stuff—But It
Will Come True!
Thoughtful Interlude
How To Sell Better

Stories of the Week

"You've probably seen a lot of things in your long lifetime, Grandma."

"Not so much as you'd imagine. Seems like everything is over by the time I can find my glasses."

"Son, never speak unkindly of price cutters."

"Never knock them, because God made them just the same as he made hornets, crabs, lizards, roaches, ants, centipedes, fleas, lice, wasps, skunks, and other unpleasant things."

Perhaps the greatest tribute ever uttered by one man to another was photographer Edward Steichen's accolade to writer Carl Sandburg on the latter's 80th birthday:

"When God made Carl, he didn't do anything else that day but just sit around and feel good."

Dream Stuff—But It Will Come True!

What will the American home of 1978 be like?

Westinghouse people recently took a look into their private crystal ball—20 years ahead model—and envisioned a home filled with more than 100 automatic devices—half of which will not even be on the market for another 10 years!

Here are some of the marvels our Westinghouse friends foresee:

A heat pump with a self-adjusting thermostatic control will provide all-weather comfort. Collectively these installed heat pumps will consume more electric power than the entire electricity industry now is providing to homes, Bruce Henderson predicts.

An electrostatic cleaning wand will do the dusting. (Accumulated dirt will be washed off the wand into the sink.) Electrostatic "Welcome" mats will clean muddy shoes before kids enter the house.

Clothes and dishes will be dry cleaned in a jiffy by inaudible sound waves.

In the kitchen, refrigerated drawers may be chilled by electric current passing through the junction of two dissimilar metals (the "Peltier Effect").

(Concluded on Page 6, Col. 1)

ASHAE, ASRE Summarize Merger Plan

NEW YORK CITY—An official summary of the proposed plan for the merger of the American Society of Heating & Air-Conditioning Engineers, Inc., and The American Society of Refrigerating Engineers, released this month by the ASHAE and ASRE national offices, spells out officially for the first time the details of the merger plan.

A special meeting of the ASHAE will be held Dec. 1 at the Conrad Hilton hotel in Chicago, to record the votes cast in person or by proxy, for or against the merger. Balloting upon the proposal by ASRE members, voting in person or by proxy, will be carried out on Dec. 1 at New Orleans, during the semi-annual meeting of the ASRE.

The merger, if approved by the membership of both societies, would become effective in 1959. It requires an affirmative vote of two thirds of the members of the respective societies voting, in person or by proxy.

The merged societies, composed of approximately 11,800 members of ASHAE and approximately 7,000 members of ASRE, less duplicate memberships, would have an immediate potential of 17,800 members and would be known as the American Society of Heating, Refrigerating, and Air Conditioning Engineers, Inc. (ASHRAE).

Members will, prior to the meeting, receive by mail proxy forms, complete copies of the proposed new by-laws, and the Agreement for Consolidation as required by the laws of the state of New York.

Following are some of the details of the proposed merger plans, as they are presented

in the official summary:

As the preferred method of consolidation a new corporation would be formed. As part of the procedure a new set of by-laws is drafted for the merged corporation, and the final result legally would be a new society.

Individual members of either society will retain the highest grade of membership currently assigned them in either society. The dues for members would be \$25 per year, and the dues of other grades of membership, which conform to ECPD recommendations, would be substantially in accordance with the present schedules.

(A proposed table of financial data in the summary shows an estimated annual expense of \$1,113,500 and estimated annual operating income, from all sources, of \$1,137,000.

The following areas of interest are noted as being pertinent to the membership of the merged society:

1. Heating

(a) Residential (b) Commercial (c) Industrial (d) Process Heating (e) Sterilization (f) Fuels Technology and Combustion.

2. Refrigeration

(a) Domestic (b) Commercial (Concluded on Page 21, Col. 1)

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Building Starts Boom In July

WASHINGTON, D. C.—Home mortgage insurance applications and mortgage lending by savings and loan associations set new records in July and future construction contracts in the first half of 1958 rose to a near-record level, according to recently-issued reports.

The Federal Housing Administration said July applications for home mortgage insurance covered 92,700 units, compared with 90,600 in June, the previous high, and 43,399 in July, 1957.

(Concluded on Page 4, Col. 5)

Hotpoint Announces Low Density Electric Baseboard Heating

CHICAGO—A new low density electric baseboard heating system, said to be perfected after five years of research, has been announced by Hotpoint Co.

This system can be used for new homes, remodeling, additional rooms, or as an auxiliary heating for bathrooms, porches, or utility rooms, it was pointed out.

The system "is unlike other heating systems on the market today because of the new design, and new low density heating (Concluded on Page 4, Col. 4)

Welbilt Purchase To Let Firm Sell Heating, Cooling

MASPETH, N. Y.—Alexander P. Hirsch, board chairman of Welbilt Corp. here, announced that the corporation has entered into an agreement to acquire, on or about Sept. 15, the business and assets of Consolidated Industries, Inc. of Lafayette, Ind., manufacturer of furnaces for home and industry.

"Welbilt intends to employ Consolidated's newly-developed vertical furnace units together with Welbilt's air conditioning equipment to market a complete line of combination central heating year-round air conditioning systems for home, office, and industrial installations," it was stated.

According to the agreement, (Concluded on Page 4, Col. 1)

Effective Date In Question on Room Unit Tax Ambiguity, Inequities Among Problems Cited By Manufacturers

WASHINGTON, D. C.—There has been no indication as yet when the Internal Revenue Service will make effective the imposition of the 10% excise tax on manufacturers' sales of all room air conditioners.

As reported in last week's issue of the NEWS, the IRS announced that plans were being made to issue a new revenue ruling which would impose the tax on all room conditioners. At present, under Revenue Ruling 54-462 issued in 1954, only those room units under 1 hp. in size are being taxed.

In its "letter of intent" written to two industry associations, the IRS said that further action would be deferred for a period of 30 days to enable those affected by the ruling to express their views. The room air conditioner sections of the Air-Conditioning & Refrigeration Institute (ARI) and the National Electrical Manufacturers Association (NEMA) have requested hearings to express their views, but no date has been set. It is thought that the hearing date might be the latter part of September.

It is believed that it would take some time after the hearing before the new ruling could be issued and made effective, but no one seems to be able to say anything very specifically on the timing. Thus, the new tax ruling, if not further delayed, might go into effect as early as Oct. 1, or as late as November or December.

In the meantime, the room air conditioner sections of the ARI and NEMA are calling meetings aimed at developing their viewpoints to present to the IRS. From comments made by some of the individual manufacturers, it seems likely that the proposed ruling will be objected to on the following grounds.

The wording in the proposed ruling is ambiguous and might (Concluded on Page 4, Col. 4)

Weather

Some Areas To Be 'Much Above' Normal

WASHINGTON, D. C.—"Much above" normal temperatures for the entire Pacific Coast area, and "above normal" readings for all of the West and Southwest (with "much above" in some parts), and also for the South Atlantic States, is the U. S. Weather Bureau's prediction for the period extending to the middle of September.

"Near normal" temperatures are expected through the rest of the South and the Plains States, while somewhat below normal readings are predicted for the northeastern quarter of the nation. Precipitation is expected to be heavy in the Northeast and in Florida, but moderate and light in the rest of the nation.

UA Expands Organizing Program for Refrigeration, Cooling

CLEVELAND—The United Association is expanding its organizational program for the air conditioning and refrigeration industry, it was indicated by Peter T. Schoemann, UA general president, in a letter to Ray Kromer, executive vice president of the Refrigeration & Air Conditioning Contractors Association (national).

Schoemann said the letter was to officially notify RACCA that the UA has assigned Special Representatives Owen P. Kelly, Joseph O'Toole, and C. F. Voss "to work under the super-

vision of General Organizer Joseph F. Monahan relative to the organization of the refrigeration and air conditioning industry throughout the United States."

Any request for the services of the special representatives "should be addressed to this office," Schoemann further advised.

He added that "this office in turn will assign the special representative in the respective district to lend whatever aid possible to our local union in that locality as well as the

refrigeration and air conditioning contractors for the advancement of the industry and for the best interest of both RACCA and the United Association."

Districts assigned to the special representatives were reported as follows:

Kelly—Virginia, West Virginia, District of Columbia, Maryland, Delaware, New York, New Jersey, New England states, Pennsylvania, Ohio.

Voss — Washington - Oregon, Montana-Wyoming, Kansas-Nebraska, Utah-Colorado, the Dakotas, Arizona-New Mexico,

Oklahoma - Nevada, Idaho - Hawaii.

O'Toole — Minnesota-Wisconsin, Michigan-Texas, Iowa-Missouri, Kentucky-Tennessee, the Carolinas, Georgia-Alabama, Florida - Mississippi, Louisiana - Arkansas.

Cool Russian Reception

AUBURN, N. Y.—Visitors to the Russian Embassy in Bangkok, Thailand, get a cool reception. Five Remington room air conditioners have been installed there.

Visitors to the U. S. Embassy in Bangkok presumably get a warmer reception. Two Remington units were installed there.

Employee Group Buys N. O. Nelson

ST. LOUIS—A group of employees has purchased N. O. Nelson Co., wholesaler of air conditioning, refrigeration, heating, plumbing, and industrial supplies, according to George W. Hoffmann, president and treasurer of N. O. Nelson Administration Co.

In mid-1956, N. O. Nelson went into bankruptcy after complicated financial dealings involving Bellanca Corp. and Sydney L. Albert, former Bellanca president.

In April of last year, a group of Davenport, Iowa businessmen headed by Glenn Seydel bought the company's assets for \$700,000. The company emerged from bankruptcy about three months later.

Seven employees and Hoffmann will continue to operate outlets in Missouri, Illinois, Arkansas, Kentucky, and Tennessee. Hoffmann, a veteran employee, was operating head of the firm during its bankruptcy and then vice president under the Seydel group's ownership.

He said former managers of N. O. Nelson branches will now be presidents of individual corporations in each city in which the company has operations. Book-keeping and accounting will be handled by N. O. Nelson Administration Co. in St. Louis.

Terming the outlook for the company "very good," Hoffmann forecast total sales for the calendar year 1958 of about \$6 million.

Zumbrun To Retire From Dunham-Bush

UTICA, N. Y.—A. G. Zumbrun, vice president of Dunham-Bush, Inc. and general manager of its Brunner Div. here, will retire Sept. 1.

Al, as he is known in the trade, will thus end a continuous association of 33 years with Brunner Mfg. Co., and its present owner, Dunham-Bush.

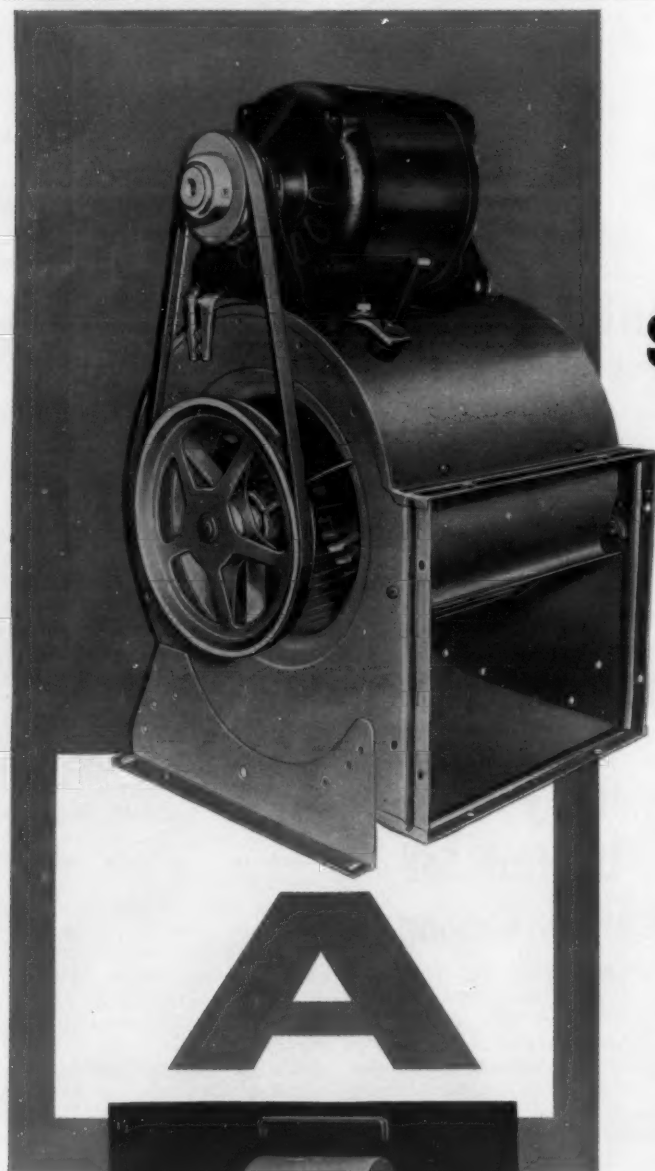
He served Brunner as office manager, credit manager, and chief accountant, later became treasurer, then vice president and general manager, and, in 1950, president. He was named to his present post when Dunham-Bush acquired Brunner last year.

He plans to retire to his winter home in Deerfield, Fla., which was completed a year ago. He will, however, maintain his summer home on the St. Lawrence.

Singleton Elected President of NEMA

NEW YORK CITY—J. L. Singleton, vice president, Industries Group, Allis-Chalmers Mfg. Co., Milwaukee, has been elected president of the National Electrical Manufacturers Association to fill the unexpired term of the late W. V. O'Brien.

Singleton has been a member of the NEMA Board since 1952, and served as an association vice president since 1955. The association will elect its 1959 officers at its convention next November at Atlantic City.



GIVE 'EM SERIES "A" FOR EFFORT

Compact LAU Series "A" Blowers give you 350 to 50,000 c.f.m. plus a host of exclusives

COMPACT—that's the word for LAU Series "A" blowers. Their compact design gives you more c.f.m. from less blower space so you'll have greater design freedom in planning your equipment. We know from experience (over 27 years now) what an unhappy compromise an extra inch of over-all blower width can mean in the design of heating and cooling equipment. That's why a host of special advantages has been designed into LAU Series "A" blowers.

For instance: Reinforced beading which strengthens each scroll side. Or Preslok® Wheels that increase operating speed maximums at least 50%. And that's just the start of LAU advantages! Versatile motor mounts give maximum lateral and rotational motor movement. Exclusive tripod bearing brackets permit maximum air movement with great support stability. And don't forget LAU designed bearings, shafts and pulleys which are recognized leaders.

On Econo-Pak® and "Budget" versions of Series "A" blower assemblies, pre-punched scroll sides permit all 4 discharge angles and housing supports are applicable to every discharge angle without adjustments.

Isn't it time you benefited from all these advantages? LAU Blower Company, 2027 Home Ave., Dayton 17, Ohio. Other plants in Irwindale, Calif. and Kitchener, Ont., Canada.



Econo-Pak® Blower Assemblies. Series "A" blowers shipped with housing supports and motor mounting unassembled. Shipped in separate cartons or palletized in units of 24.



"Budget" Blower Units. Series "A" blowers less housing supports and motor mounting. Shipped in separate cartons or palletized in units of 24.

Here's the Man to Call...



Cincinnati 30, Ohio
Don G. Jensen
6422 Glade Avenue
Cleveland 24, Ohio
Charles C. Miley
1561 Woodrow Avenue
Cranford, New Jersey
E. C. Wolford
11 English Village

Dearborn, Michigan
J. B. Wallace
9 Byfield Lane
Denver 2, Colorado
Ben T. Clark
1421 Court Place
Elmwood Park 35, Illinois
William J. Lohrey
2047 77th Avenue

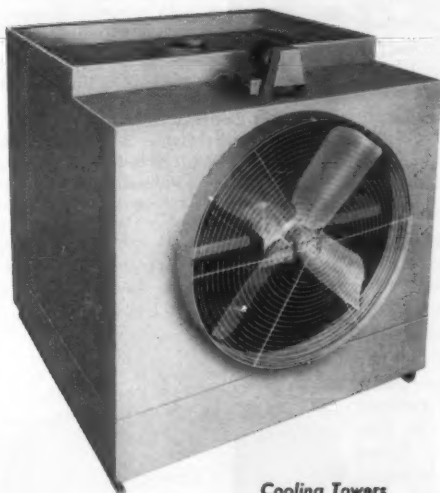
Kansas City 14, Missouri
Charles L. Sigman
8906 Holly Avenue
Irwindale, California
G. R. Mergenthaler
15601 Arrow Highway
Prairie Village 15, Kansas
Victor Stewart
7112 Buena Vista

Seattle 55, Washington
William M. Feistrup
19246 Lago Place
Syracuse, New York
Henry Seebach
560 Allen Street
York, Pennsylvania
E. F. Humphrey
327 Lambeth Drive

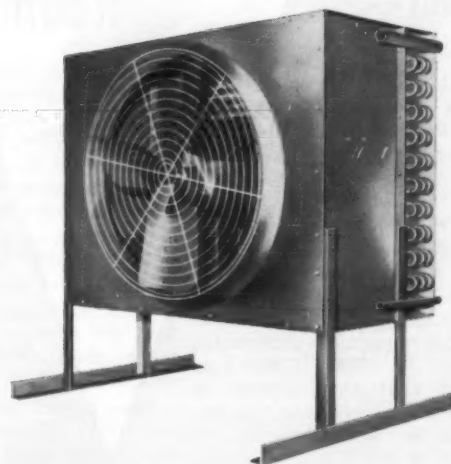
The BIG Wheel in air moving



Water-Cooled Condensers



Cooling Towers



Air-Cooled Condensers



Cooling Towers

So Halstead & Mitchell engineers said . . .

**"Here's a line of 'high side' products
that cost less to buy, less to operate
...less to maintain"**

HM CLEANABLE, COUNTERFLOW WATER-COOLED CONDENSERS

H&M Water-Cooled Condensers perform efficiently even in hottest weather or in crowded equipment rooms. Double-tube design and counterflow of refrigerant and water assure maximum heat transfer. Removable headers permit easy water tube cleaning with a simple accessory tool and an ordinary electric drill. Scale and sludge are removed without harmful chemical cleaners. Available in $\frac{1}{2}$ through 25 tons, all H&M condensers are U/L approved for Refrigerants 12 or 22.

HM COOLING TOWERS WITH THE EXCLUSIVE 20-YEAR GUARANTEE

Ideally suited for all refrigeration, air conditioning and industrial process water cooling applications. Induced air flow and efficient water distribution cool the circulating water thoroughly, even on very humid days. Pressure creosoting of the wood fill makes possible the industry's only 20-Year Guarantee on the wetted deck surface against failure due to rotting or attack by fungus. The tower casings are specially coated with plastic *after assembly* for complete protection against corrosion. Propeller Fan models are available in 2 through 125 tons; Take-Aparts, in 5 through 100 tons; Blower Fan models, in 5 through 25 tons.

HM AIR-COOLED CONDENSERS WITH TURBU-FLO, WIDE-SPACED FINS

Larger coils and exclusive Turbu-Flo fins provide dependable performance for air-cooled systems. The embossed, streamline fins create

better air wash, thus reducing air film resistance and increasing heat transfer by up to 15%. Wide fin spacing keeps coils from clogging with dirt or other air borne particles. Sturdy, lock tight construction won't vibrate or rattle. Design embodies slow speed, deep pitch fans and draw-through draft for quiet, efficient operation. H&M Air-Cooled Condensers are available for Refrigerants 12 or 22, in 3 through 50 tons. Multiple circuiting to suit the individual job is provided.

Ask for all Halstead & Mitchell products at your nearby distributor's or write for descriptive literature. Halstead & Mitchell, Bessemer Building, Pittsburgh 22, Pa.



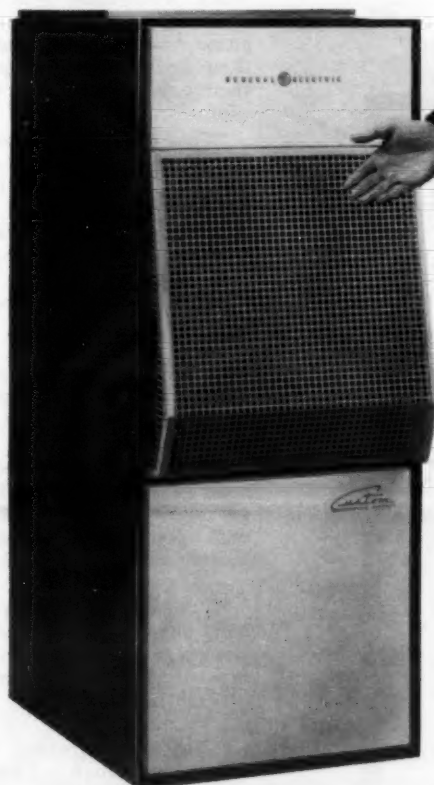
WATER-COOLED CONDENSERS • COOLING TOWERS
AIR-COOLED CONDENSERS • FINNED-SURFACE COILS

Fashions in Furnaces

by GENERAL ELECTRIC

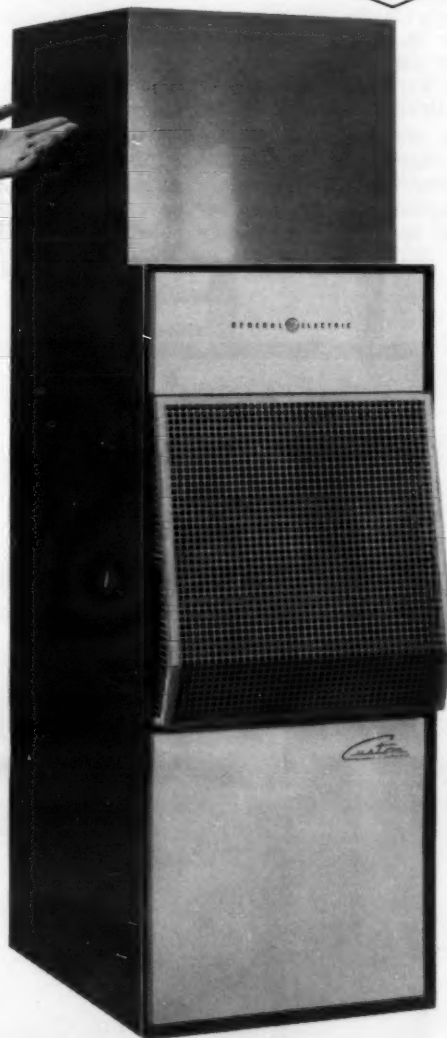


ONLY 55" HIGH



"GROWS" INTO
YEAR 'ROUND
AIR CONDITIONING

COOLING
COIL
ENCLOSURE



ALL-NEW *Custom* OIL FURNACE LINE...

COMPLETELY FACTORY ASSEMBLED AND DESIGNED TO BOOST YOUR PROFITS

Ideally priced for the builder market and for the profitable modernization and replacement market. Smallest model takes only 28" x 22" of floor space in vertical application. Horizontal-downflow combination can be installed either in downflow position or on either side in horizontal application. Entire line features quick-heating "Vertifin" heat exchanger—dependable safety features. Conventional high-pressure gun

burner and other standard parts permit easy servicing and replacement. Two-tone gray, ultimate in smart design—handsome as a modern kitchen appliance. BTUH output: 84,000 to 168,000 upflow—84,000 to 112,000 combination horizontal-downflow. *Listed by Underwriters' Laboratories and approved by UL as conforming with the U.S. Department of Commerce Commercial Standard CS 195-57.*



OPERATION UPTURN means General Electric will go all out to accelerate an upturn in business in 1958. It will help boost dealer sales and profits. So get in on the ground floor! For complete details of OPERATION UPTURN and a General Electric franchise, call your nearest General Electric distributor—listed in the yellow pages of your phone book—or mail coupon. General Electric Company, Air Conditioning Department, Tyler, Texas.

GENERAL  ELECTRIC

General Electric Company
Air Conditioning Dept., Tyler, Texas
I would like complete information on the General Electric
Air Conditioning Department Franchise—and OPERATION
UPTURN.
Name _____
Firm Name _____
Address _____
City _____ Zone _____ State _____

ACD 15

Inside Dope

By GEORGE
F. TAUBENECK

(Concluded from Page 1, Col. 1)

Prepared foods will be stored on freezer racks and, when desired, complete meals selected by pushbutton will move from freezer to infrared oven.

Food will be cooked and ready for use at the precise moment pre-selected on a timer.

Tinted lighting will be employed as decoration rather than mere illumination.

Bedroom closets will be equipped with moving tracks which will carry suits or dresses into a chamber where dirt will be removed ultrasonically.

Within minutes, back to the hanging closet, will come cleaned and pressed clothing.

Westinghouse astrologers assert that in 1978 the nation's

living standard will be at least 50% higher than it is at present.

Concomitant predictions: America's electric utility industry will have 75 million customers, 2.2 trillion kwh. sales annually, and an installed generating capacity of 550 million kw. One fourth of installed capacity will be in nuclear plants.

A whole new professional class of engineers and technicians will spend full time on the care and feeding of tens of thousands of electronic computers, most of them used in industrial processes.

All naval vessels in service will be atom-powered, this wondrous crystal ball reveals additionally. And radio-active fission wastes will form the basis of an entire new chemical industry.

Twenty years from now the nations of the Far East will have begun to realize their potential, both as sources of

strategic materials and as mass markets for American products.

Hawaii, furthermore, will take on new importance as the hub of tremendously increased trade between America's west coast and the independent nations of the Far East.

Truly, the third quarter of the 20th century will be a turning point in history—an era in which man can rise to a new plateau in his effort to create a better, more productive, more spacious, more equitable, and happy industrial society.

Thoughtful Interlude

The beginning of greatness is to be different. Conversely, the beginning of mediocrity is to be the same. Similarity flourishes like weeds. But difference must be cultivated like rare and fragile flowers.—C. L. WHITTIER, Vice President, Young and Rubicam.

How To Sell Better

Recently a fascinating little book ("Entirely Business," by H. S. Spencer) was sent us. From it the following astute observations on selling are quoted:

"Selling is just making people like to do business with you instead of someone else."

"The principles of good salesmanship are few. They may be hard to practice but they are essential:

"Don't talk too much. Remember, the other fellow likes to talk, too. Be a good talker, but always be a better listener.

"Never interrupt the prospective buyer. Never appear over-positive. Antagonism isn't the way around an objection. Ask questions instead of arguing.

"Repeating objections clearly—then overcoming them—convinces a buyer that you under-

stand his business and know yours."

"The salesman hears all about his competitors—all that his competitors say about his outfit. He gets all the bad news. He calls at inaccessible places. His hours of work are irregular as are his food and his lodging.

"It is a wonder that salesmen have any enthusiasm at all, but they do, and most of them ride on the crest of the wave. Good salesmen, like good soldiers, seldom admit defeat."

"It is extremely interesting to piece together terse routine memos from men in the field. Over a period of time you learn their innermost thoughts regarding their respect for the house they represent, their competitors and competitors' products, the customers, and the ultimate product.

"You learn how they get along with their fellow men; their moments of doubt, suspicion, lack of confidence; of their drifts toward despair and their bursts of renewed enthusiasm.

"You watch one man work his fingers to the bone trying to wring the last pound of business out of a certain account. At the same time he shies away from a large potential customer down the street—the buyer is "tough"—can't get anywhere with him."

"What comprises a good salesman—more to the point, let us say a salesman who secures good sales?

"First he must like his work, must get fun out of it. He must get a satisfaction out of being with people of all sorts, no matter how they treat him."

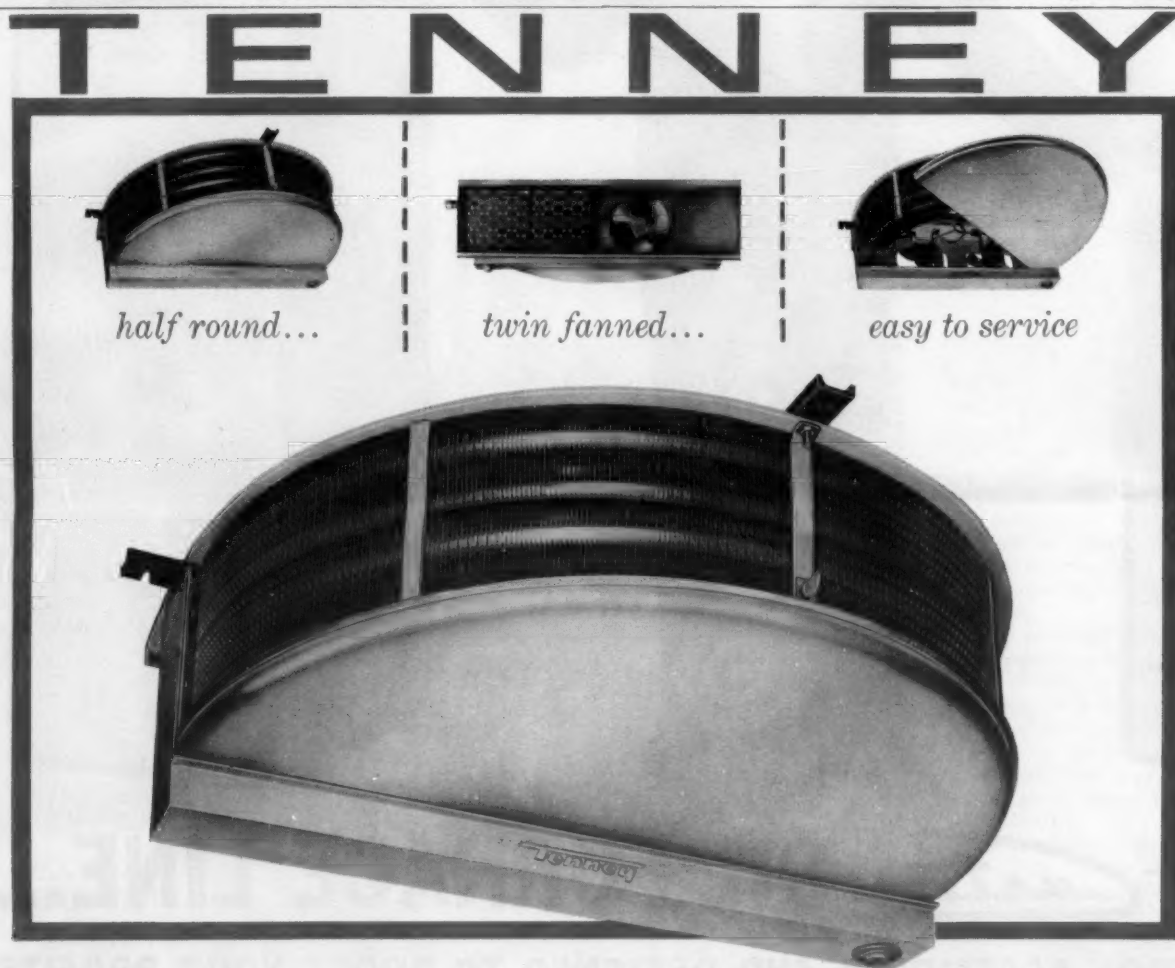
"The salesman is going to meet objections, but these objections are not going to bother him if he believes his own proposition."

"The world's greatest optimist is the salesman. Things are always right with the salesman. He is, according to all books of instruction and the advice of his superiors, a perpetual Sunny Jim.

"Now the salesman should be cheerful, optimistic, enthusiastic, constructive, convincing, cordial, and polite.

"The salesman should be up on politics, sports, industrial trends; tell funny stories, enjoy playing cards, adore small children (if they are those of customers or prospective customers).

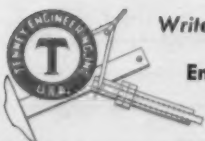
"A composite of Will Rogers, Bob Hope, Adolph Menjou, John Patterson, Charles Kettering, President Eisenhower, and the King of Siam—that's The Salesman!"



Tenney TW and TWF unit coolers now ALL-ALUMINUM!

More cooling power per square inch and most convenient installation with Tenney's TW and TWF unit coolers than with any other comparable units—and now they're built of lightweight, rustproof aluminum. True half round design insures maximum air distribution. It hugs up tight against the ceiling and its unique design allows maximum product storage. Service is so simple—flick off a thumb screw and the entire

unit is open, with all parts within easy reach. You never disturb existing refrigeration, electrical or water drain lines! And in case of emergency, one of the unit's two fan-and-motor combinations can maintain safe temperatures until help arrives. Standard filters are optional on both units. Write for literature and technical data on these new all-aluminum TW and TWF unit coolers today.



Write for Bulletin 104-54

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of Refrigeration and
Environmental Equipment

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1090 SPRINGFIELD ROAD, UNION, NEW JERSEY • PLANTS: UNION, NEW JERSEY AND BALTIMORE, MARYLAND

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LISTEN! Frigidaire Golden Rule Service is playing your song!

The sweetest melody of all—*profit!* A service department *can* be operated at a profit . . . and it *can* help to bring you sales! Does that melody sound familiar? Well, listen to this:

Suppose Mrs. Average Housewife needs service on her refrigerator. (It can happen, even with a quality product.) She calls a Dealer who is friendly, interested in her problem. Dealer promises—and delivers—quick action. A polite, neat-appearing serviceman appears promptly, repairs the appliance efficiently and expertly, then leaves not a speck or a smudge on the product or the kitchen floor. And what happens then?

What happens is this—when Mrs. Housewife becomes Mrs. Prospect, for a new refrigerator or other major appliance, she remembers her previous service experience. She is wary of dealers who lack a community-wide service reputation. This is a big investment for her and one she wants to know is protected. So—in more cases than not—she makes a bee-line for the dealer who took the trouble to give her *real service*.

Isn't that what you'd do?

The sweet song of success, for nearly 10,000 dealers, starts with twelve customer-tested elements of Frigidaire Golden Rule Service.



WITH GOLDEN RULE SERVICE BACKING EVERY SALE

FRIGIDAIRE is on the march



FRIGIDAIRE TECH TALKS AND TECH TIPS...

Your service profits—and future sales—may depend on getting the job done right on the first call! Frigidaire provides up-to-the-minute technical information, training and servicing tips to keep your servicemen up with the times . . . help to assure continuous customer satisfaction.



1,100 In-Wall Units Cool 520 Suites In Famed Philadelphia Apartment House

Job Leads To Similar System for Northeastern Hospital

PHILADELPHIA—More than 1,100 in-the-wall air conditioners of ¾ and 1-hp. size are being installed to provide individually controlled cooling in each of the 520 suites in the famed 2601 Parkway apartment house here.

The job was actually started in 1957 and is scheduled for completion in August of this year.

Developed and engineered by H. B. Shaffer, vice president of S. S. Fretz, Jr., Inc., Airtemp distributor here, this installation has been directly responsible for other jobs involving Airtemp in-wall units, notably

all the patients' rooms in Northeastern hospital here.

Winning the 2601 Parkway job, moreover, was considered quite a "feather in the cap" by the Fretz organization because the owner and operator of the building—Mayer I. Blum, who has been called the "world's perfect landlord"—is exacting in his requirements.

Blum, an engineer in his own right, has done some incredible things as a landlord. There was, for example, the exasperating tenant who had the walls of her apartment repainted three times and other changes made over a very short period.

She was soon cured of this by Blum, who bright and early every morning had his crew of painters, plumbers, carpenters, and handymen parade to her door and cheerfully inquire, "What can we do for you today?"

About three years ago Blum initiated an extensive modernization program costing close to \$700,000 that was to include air conditioning for all the apartments. A number of tenants had previously installed window units on their own.

Various methods were studied and some seven different makes of units tested before the Air-

temp in-wall units were chosen by Blum.

This approach, Shaffer of Fretz also points out, cost only about a third as much as a central system.

What was probably the toughest part of the actual installation was cutting through the outside brick walls of the building. This was done from scaffolds lowered from the roof.

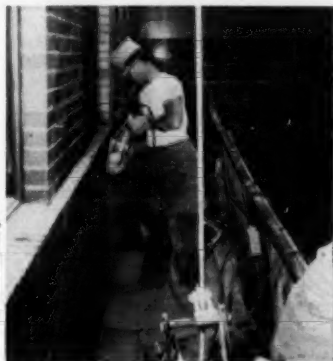
Openings for the in-wall units were first scored with a carbundum saw and then the bricks removed with a jackhammer. After each outside opening was completed, a metal sleeve was fastened in place and covered with a sheet of masonite pending cutting of the inside wall and installation of the air conditioner.

The work was so organized that the scaffold crews would start at the top of the building and cut all the openings re-

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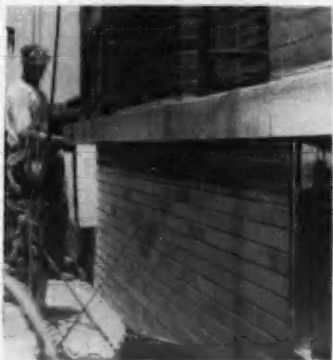
OVERALL view of 2601 Parkway, Philadelphia apartment house where 1,100 in-wall air conditioners have been installed to serve all 520 suites.



OPENINGS in outside brick walls of apartment house are first scored with carbundum wheel. Most of outside work was done from scaffolds.



BRICK is removed to create openings for air conditioners in outside walls with electric jack-hammers.



METAL sleeve is inserted in outside opening. Pending installation of unit from inside, opening is covered with masonite sheet.

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"Emergency Diagnosis, Repair of Hermetic Unit Electric Components," by John L. Zant, mail this ad with your name and address to: Air Conditioning & Refrigeration News, 450 W. Fort, Detroit 26, Mich.
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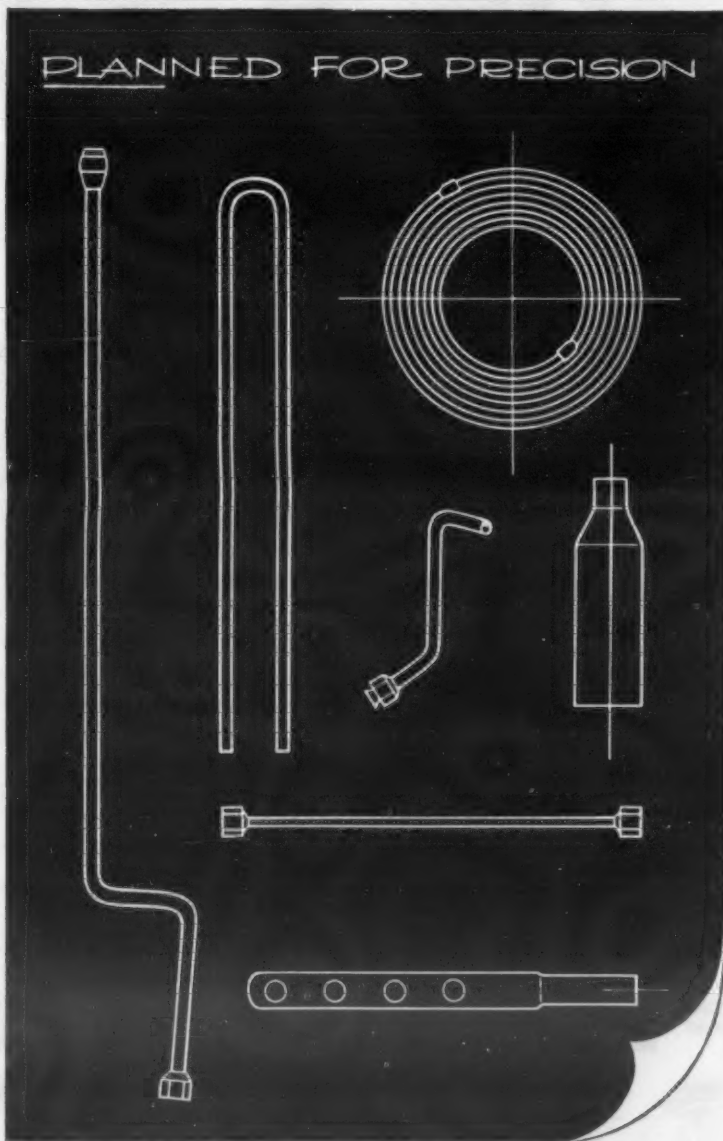
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ELECTRIC saw quickly cuts opening for unit in interior plaster wall. Inside work required no more than one day in each apartment, except for painting.



MOUNTING frame and weather louvers are installed from inside. Note tenant's old window unit, which will be removed.



COMPLETED installation in apartment looks like this.



IDENTICAL approach was used to provide in-wall air conditioning for all the patients' rooms in Philadelphia's North-eastern hospital. Here Eugene F. Cox and Dr. Asa M. Lehman, administrator, inspect typical installation.

(Concluded from preceding page) quired all the way down before shifting the scaffold and starting on the next row.

This outside work was performed by the firm that has made the slogan "Kelly for Brickwork" virtually a byword in Philadelphia. Head of the company, incidentally, crossed the Atlantic a few years ago to give away his daughter Grace in marriage to a certain European prince.

Interior work consisted primarily of cutting through the plaster walls, installing the air conditioner chassis and the cover.

Except for whatever painting was necessary, inside work for each apartment was completed in a day.

Blum, the owner, is enthusiastic about the individual control this type of installation gives his tenants, but he also

stresses the "beauty and safety" of these in-wall units.

"Conventional room air conditioners mar the exterior of a building, obstruct draperies and furniture, and are dangerous because of the possibility of their falling," Blum contends.

Similar views are held by officials of Northeastern hospital, who also cite other advantages:

"No disruption of normal routine. Because ductwork is unnecessary, conversion can be made room by room.

"Elimination of traffic noises, and because of the two-speed fan arrangement of Chrysler Airtemp All-In-Wall units, even quieter operation at night or during rest periods.

"Little or no maintenance costs, and no necessity for an operating engineer, as is required with a central plant system."

WHAT .. WHEN .. WHERE

Oil-Heat Institute of America Directors Meeting
Sept. 3-5, The Homestead, Hot Springs, Va.

National Institute of Locker & Freezer Provisioners
Convention and Exhibit
Sept. 21-24, Hotel Sherman, Chicago.

Refrigeration & Air Conditioning Contractors Association
Convention
Oct. 12-15, Broadmoor hotel, Colorado Springs, Colo.

Air-Conditioning & Refrigeration Wholesalers Meeting
Oct. 22-24, Sheraton-Palace, San Francisco.

National Electrical Manufacturers Association Meeting
Nov. 10-14, Traymore hotel, Atlantic City, N. J.

National Association of Practical Refrigerating Engineers
Meeting
Nov. 11-13, Kenilworth hotel, Miami Beach, Fla.

National Commercial Refrigerator Sales Association
Convention
Nov. 17-19, Golden Gate hotel, Miami Beach, Fla.

American Society of Refrigerating Engineers Meeting
Dec. 1-3, Roosevelt hotel, New Orleans.



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You earn important savings with a **TINY-T** model compressor . . . less cost, less weight, less size than previous single cylinder internally spring mounted compressors. Cost savings will run between 5% and 15% depending on the parts supplied. 10 to 16 pounds less weight means your freight costs will drop substantially. This new **TINY-T** line of compressors is just one more example of Tecumseh engineering **VISION**—Why not turn it to your use?

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Model T53 — (1/5 HP) 2100 BTU
Model AT4C — (1/4 HP) 3175 BTU

Rating Figures are Nominal (plus or minus 5%), Based on Following Conditions:

| | |
|---------------------------------------|--------|
| Condensing Temperature | 130°F. |
| Evaporator Temperature | 45°F. |
| Return Gas | 95°F. |
| Ambient | 95°F. |
| Liquid Temp. Entering Expansion Valve | 115°F. |

All Above Models R-12

LOW TEMPERATURE MODELS

Model T63 — (1/6 HP) 525 BTU
Model AT5C — (1/5 HP) 850 BTU
Model T55 — (1/5 HP) 645 BTU
Model AT43 — (1/4 HP) 1000 BTU
Model AT35 — (1/3 HP) 1250 BTU

| | High Back Pressure | Low Back Pressure |
|---------------------------------------|--------------------|-------------------|
| Condensing Temperature | 130°F. | 130°F. |
| Evaporator Temperature | 45°F. | -10°F. |
| Return Gas | 95°F. | 90°F. |
| Ambient | 95°F. | 90°F. |
| Liquid Temp. Entering Expansion Valve | 115°F. | 90°F. |



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New Jersey Wholesalers Plan Consumer Ad Campaign

EGG HARBOR, N. J.—A weekly, year-round advertising campaign to promote plumbing-heating-cooling products and services to the public resulted from a meeting here of wholesalers from three New Jersey counties.

The action the wholesalers took is a means of creating business that could be put into effect profitably in any area, it was noted.

Wholesalers attending the meeting represented 12 wholesaler firms in Atlantic, Cape

May, and Cumberland counties. Two additional wholesalers who could not attend also cooperated. They had invited the advertising manager of the Atlantic City Press, Howard T. Ashman, to explain an effective, sustained advertising program that Ashman and a committee from the group had discussed previously as a means of increasing plumbing-heating-cooling business volume in the next year.

Another outcome of the meeting was that each wholesaler

attending officially pledged his entire company's support to the program and objectives of the Plumbing-Heating-Cooling Information Bureau, it was reported.

The meeting was called by Sidney O. Morton of the Pleasantville Plumbing Supply Co., Pleasantville, N. J., local chairman of the All Industries Committee of the Middle Atlantic Wholesalers Association. Thomas Taylor of the Taylor Supply Co., Atlantic City, introduced Ashman to the group.

Standard V-Belt Made of 'Dacron' and Neoprene

CAMBRIDGE, Mass.—Boston Woven Hose & Rubber Co. has shifted its entire production of industrial V-belts to a new construction of neoprene reinforced with "Dacron" polyester fiber.

The firm is said to be the

first in the industry to offer these materials along with a fiber-dispersed compression member in standard V-belts. The belt will be marketed both for original equipment and replacement use.

The belt is intended to give the design engineer more latitude by providing greater longitudinal flexibility while at the same time giving transverse rigidity, and to help the maintenance man by permitting lower inventory and reducing matching and take-up time.

Norge Film and Quiz Stress Customer-Serviceman Relationships

CHICAGO—When selling the customer a replacement control, what point should you stress the most? (Check One)

a) That you don't know how long it will last.

b) It is unusual for a control to fail.

c) It carries a warranty.

This is the first of ten questions on customer-serviceman relations in a quiz developed by Norge Div., Borg-Warner Corp.

Designed for distributor or dealer-service meetings, the quiz is passed out, then graded before showing of an 18-minute film on "Handling Situations and Customers." After the movie, discussion brings out the correct answers to the ten questions. Entire training program lasts some 45 minutes.

"Service can be easy and pleasant, if the right steps are taken," states Elmer Fenton, Norge director of national service, "and the film underlines such rules as:

"From the nature of the complaint, attempt to have parts which may be necessary with you;

"Make a thorough inspection; don't just fix the obvious;

"Report findings to user."

Detroit RSES Plans 'All-Makes Service Manual' Study Course

DETROIT—A study course in the All-Makes Service Manual will be started next fall by the Greater Detroit Chapter of the Refrigeration Service Engineers Society.

The course will start in September and run through May, a total of 36 weeks, according to Mike Sarzynski, president.

First part of the course will cover sections 1 through 9 of the manual and the second will cover sections 12 through 94. Only RSES members in good standing are eligible to enroll.

'UCON' Marketing--

(Concluded from Page 1)

carbons, Carbide will employ its sales force operating from 28 district offices and a network of 47 warehouses throughout the U. S., reports John R. Hulten, manager—Fluorocarbons Sales.

At the present time, plans have been completed to train more than 100 Carbide technical sales representatives, who will soon be calling on the refrigeration parts wholesalers. To supplement this force, a staff of refrigeration specialists is being organized.

A technical service laboratory for "UCON" refrigerants is part of Carbide's laboratory organization, company officials stated. The facility will be transferred to the new Union Carbide Technical Service Laboratory that is under construction in Westchester county at Eastview, near Tarrytown, N. Y. scheduled for completion in late 1959 or early 1960.

Carbide's decision to enter the fluorocarbon refrigerants field is based on the substantial growth of this market over the past 12 years, said officials. Market research studies conducted by the company also reveal a steadily increasing demand for the products over the next decade.

"From its earliest beginnings, Union Carbide has had wide experience in producing, handling, and distributing bulk and cylinder quantities of both compressed and liquefied gases, and we see this as working to our customers' advantage," Hulten said.

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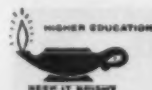
Rear view of Bohn CH Ceiling Unit

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North California Heating Institute See Progress In Search for Inhibitors Plans Night Classes In Colleges To Stop Corrosion In Steel Boilers

SAN FRANCISCO—"Eight or nine classes in different state and junior colleges" is the goal of the Warm Air Heating Institute of Northern California, according to Roland R. Taylor, member, board of directors.

"The courses are designed to help bridge the knowledge gap between present operation and the heating-cooling combination installations which are becoming so popular," Taylor commented.

Unlike last year, when classes were one night a week and courses differed in length and curriculum, this year's courses will be standardized in subject matter and classes will be set up on a basis of 16 two-hour periods. The general approach of the Warm Air Institute has been reviewed and approved by Dr. Roy E. Simpson, superintendent of public instruction, according to Taylor.

If the course content is approved by the Division of State Colleges of the State Department of Education, the courses will then be made available to all state colleges for use in their extended day program.

The role of association-sponsored schools, such as the one described in this article, in the over-all educational picture will be among the items discussed in "Report on Education"—a comprehensive survey of educational opportunities and methods in the cooling industry. "Report" appearing in the

News. This week's instalment is on page 20.

Primary purpose of courses is to acquaint students with fundamentals necessary to figure and lay out a job for both heating and cooling. While the course covers the basic refrigeration cycle and psychrometry, it is not intended to develop air conditioning engineers or servicemen, Taylor emphasized.

"It is hoped that at least one class will be formed for each sheet metal contractors' organization in northern California," he continued. "Both the Warm Air Heating Institute of Northern California and the Institute of Heating & Air Conditioning Industries of Southern California will assist in the organization of such groups."

MINNEAPOLIS—Two chemical inhibitors apparently give promise of preventing or stopping corrosion on the water side of low pressure steel boilers, according to studies being conducted for the Steel Boiler Institute at the research center of Babcock & Wilcox Co., it was disclosed at the 1958 semi-annual meeting of American Society of Heating & Air-Conditioning Engineers.

With such boilers finding increasing application in homes, apartment houses, hospitals, and the like, it is important that an effective but simple way of preventing corrosion be found, pointed out the authors of the paper—W. A. Keilbaugh and F. J. Pocock of Babcock & Wilcox.

Chief cause of corrosion appears to be oxygen, which is unavoidably present in the feed water and boiler water.

In the tests thus far the two inhibitors that work out best, according to the authors, are a buffered chromate compound and a borate-nitrate-nitrite compound. Sodium molybdate and sodium hydroxide have proved ineffective as has a water conditioning device of the "physiochemical" type that requires no wiring or other connections, they declared.

This research is being carried out in actual boilers with conventional plain carbon steel tubes as well as high strength, low alloy tubes. Thus far hardness of water has been ignored in the tests, but this factor is

being studied in current research, it was explained.

The tests have also shown that the immersion of a copper tankless heating coil in the boiler water, out of contact with the tubes, "does not accelerate or localize corrosive attack under these test conditions."

"It is believed," the authors concluded, "that it should be possible in the not too distant future for the Steel Boiler Institute to originate a revised set of instructions for the care of the water side of the low pressure units."

A practical suggestion to minimize corrosion was offered by L. N. Hunter of National U. S. Radiator in discussion, who advised that boilers should not be drained and refilled seasonally if it can be avoided.

When the boiler is filled it should be heated immediately to drive air and oxygen out of the water, Hunter also said.

High School Heating System Sensitive To Outside Weather

CHICAGO—Economical heating is assured at the new Mother McAuley High school here by the installation of a Dunham-Bush "Vari-Vac" heating system, according to Dunham-Bush, Inc.

Set up in two zones, Vari-Vac "provides fully automatic precision temperature control that varies steam temperatures and pressures to unit ventilators and other radiation to outside weather conditions, effecting considerable fuel saving," the company said. "The system maintains even, constant heat despite outside temperature changes."

In addition to Vari-Vac control, Dunham-Bush pumps, baseboard, convectors, and unit heaters were installed.

Fox and Fox was the architect and consulting engineer; Gage Park Heating, the heating contractor; James B. Clow & Sons, the heating wholesaler.

American Air Filter Moves N. Y. Office

LOUISVILLE, Ky.—American Air Filter Co.'s New York City branch office is now located at 292 Madison Ave., New York 17. The office formerly was located at 70 East 45th St. No change was made in the telephone number—ORegon 9-0424.

At the same time, the firm's eastern regional office moved into 292 Madison Ave. Its telephone number is ORegon 9-6844.

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**HOW TO LOSE CUSTOMERS TO FOREIGN COMPETITORS**

Editor:

In the recent World Trade Issue of AIR CONDITIONING & REFRIGERATION NEWS, Mr. Albert Rebel presented interesting and cogent remarks about the status of American distribution abroad. He also put his finger on two major handicaps we suffer in competing with European manufacturers: relatively short credit terms and inadequate service aids. Quoting Mr. Rebel: "Faulty installation and poor service of American equipment are a direct blow to our industry and our European competitors will be watching us like a hawk and will take advantage of any little mistake we Americans make."

This is quite true. And one of the "little" mistakes too many American manufacturers make is that of failing to provide adequate service and installation information quickly in language foreign engineers and mechanics can read and understand.

Questionnaires returned by several hundred overseas NEWS subscribers revealed this inadequacy to be their most frequent complaint.

Nevertheless, Mr. Rebel attacks M. Forani of Belgium for daring to report that American firms sometimes delay answering a query on a specific service or installation problem several weeks, whereas a German or Danish manufacturer will send a factory engineer over the next day on request.

"M. Forani," unequivocates Mr. Rebel, "should be able to solve his difficulties himself . . . My advice to distributors abroad with such problems would be to hire an experienced refrigeration engineer."

It so happens that M. Forani is an experienced refrigeration engineer. In his office, for example, are framed certificates of membership in the A.S.R.E. and A.S.H.A.E., along with di-

plomas from European technical schools and societies.

Also he directs several other experienced refrigeration engineers and mechanics on his staff. M. Forani, however, now runs a big operation, and long since has passed the point where he can afford to go out on a service call or installation job himself.

This gentleman (who would compare with George Johnston or Joe Oberc in Detroit) simply was trying to be helpful in pointing out to American manufacturers why they were losing business to German and Danish competitors. We think his point is well taken, and should be well taken by American exporters.

To illustrate: let's postulate an hypothetical example of a distributor in Long Beach, Calif., who might represent both Recold of Los Angeles and Danfoss of Denmark.

This mythical distributor's service manager, let's say, runs into a knotty problem with a Danfoss system. He writes to Denmark seeking information, and gets this reply: "Fix it yourself, or hire a refrigeration engineer who can read Danish."

In contrast, in a similar situation, Hy Jarvis of Recold probably would send over Dan Wile the next morning to advise. If you were the California distributor, whose equipment would you push—Recold or Danfoss?

That same article (unwittingly, perhaps) does a practical disservice to uninitiated American exporters when it declares flatly that the United States and its citizens are well beloved all over the world.

Well-heeled American travelers who stay only in the best hotels, spend their afternoons with importers and their nights in plush night clubs (where their dollars are admired) (Concluded on next page)

They'll
Do It
Every
Time
by
Jimmy
Hatlo

**What's The Answer?**

MANAGEMENT AND LABOR might be able to get together and live in peace now, but for one thing—the continuously rising cost of living, over which the worker has no direct control. This inflationary merry-go-round forces him to make renewed demands as his living costs rise.

And, as labor costs rise, so do the costs of every family purchase. It's a vicious, discouraging spiral.

Obviously management and union officials ought to find out why living costs are rising, and try to stop further inflation.

Just as obviously, our present Government seems resigned to the renewed degradation of our money and to the gradual lowering of the dollar's purchasing power. Political pressures have caused this reversal of policy. Again obviously, this policy of "cheap money" has been followed by all socialistic governments in our lifetime. Dictators plan to take over "the remains" of a once-free nation after its currency has been debased.

A few short years ago our dollar was worth 100 cents in purchasing power—today it is worth 40 cents, and dropping steadily.

Manifestly a person earning \$50 a week in 1940 could buy \$50 worth of goods and services. Today he can buy only \$20 worth with the diluted 50 dollars. Likewise, a person who saved \$1,000 and put it away in a savings account, or bought insurance, finds he now can buy \$400 worth of goods at the most; and, if he builds a house, he can only buy \$300 worth.

Why and how has this happened? The answer is that recent governments have pursued the Marxist policy of deficit financing to win votes. Our own Administration spends more money yearly than it takes in taxes. Then it borrows from banks to make up the deficit, and issues new unsupported paper-currency to repay these fanciful loans. Naturally, this "printing-press" money

dilutes all existing currency. And the value of our saved-up and hard-earned money, in terms of buying power, becomes less and less.

If this borrowed money had been spent by the Government for the benefit of the whole nation, few might object. But it hasn't.

This accumulation of super-tax money has been spent for giveaway programs and handouts to bankrupt nations abroad. It has been spent at home for farm subsidies to keep prices high—and bureaucracies to hold prices down. All of these throw-money-away programs form part of the over-all technique of a Socialist State. Such subsidies drug voters into believing that Socialism gives everybody something for nothing—which, of course, is not possible.

Thus, we have built up a national debt of over 280 billion dollars (280 thousand million dollars) and that debt is growing rapidly. Today every family in the nation owes \$6,800—your family! This debt must be paid by you, your children, and your children's children—paid out of taxes yet to be levied on your earnings.

Our national debt is five times greater than all the money in circulation in America, plus all the money held in the United States Treasury. It is greater than the production of all industry for full three years at peak production. It is greater than the cost of all the food eaten by everybody in America during nine years.

Therefore, one of the first things we should strive to do is eliminate reckless government spending—then get down to earth once more—balance our budget—reduce our national debt annually—stop deficit spending—and thus raise the value of our dollar.

Then, maybe an era of peaceful cooperation between management and labor will be possible.

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8-25-58

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(Concluded from preceding page)

might come to that conclusion. Some de luxe tourists never really leave home.

Low-budget travellers who stay in side-street hostels, along with conscientious reporters who have a working knowledge of languages other than English—those who mingle with the "common people"—know better. Or soon learn.

Mr. Rebel's "Golden Rule" suggestion that anyone "who treats people with respect, dignity, and equality will be treated exactly the same way wherever he chooses to travel" is a lovely thought, and is to be recommended highly for personal behavior on all occasions.

Unfortunately, it overlooks Prejudice, which does exist in many places, including the United States. A teen-age Negro who treats whites with "respect, dignity and equality" still won't be welcomed in Little Rock Central high school. That goes double in certain spots abroad.

Vice President Nixon obviously was on his best behavior when he made a good-will tour of Central America last spring. But he ran into such a wave of anti-Americanism in Caracas and elsewhere that he came within inches of losing his life. Nor were those Iraqi mobs whistling Dixie when they tortured and dismembered a U. S. medical missionary and an American engineer.

On his latest circumnavigation this writer spent many nights in the homes of subscribers in foreign lands, and quite a few mornings with local journalists. (His reports on political situations abroad were published in the *Detroit Free Press*, as well as *AIR CONDITIONING & REFRIGERATION NEWS*). Often, in discussing Prejudice against the U. S. A. our hosts and fellow reporters would say: "Of course, you aren't typical."

Well, the hell he isn't. Such prefatory defamatory remarks are in class with: "of course, some of my best friends are Jews." You see, Prejudice embraces a whole people, not just individuals.

Let's face it. In not a few parts of the world, especially around the perimeter of the Suez Canal and the Mediterranean Sea, there's Prejudice against America *per se*. This is a handicap which needs astute merchandising to overcome.

As Hy Jarvis pointed out in that same World Trade Issue: "Despite the fact that we put up the money every effort seems to be directed toward the purchase of equipment from our allies, notably West Germany and Great Britain."

There are local reasons for this attitude, aside from sheer cussedness. Perhaps there are clues in this letter as to how it can be checkmated. For example: better products, prices and service will beat initial prejudice. Businessmen abroad are sensible fellows.

Another thing is for sure. If you want to help European competitors take away more air conditioning and refrigeration business from us, next time an importer writes for application data, don't answer until a month has passed. Then reply:

"Quit bothering us, Buster. Hire yourself a good engineer."

GEORGE F. TAUBENECK

Caters To Urge To Keep Up with Jones

Sales To Neighbors of Home Cooling Owner Follow Publicizing of Original Installation

CHATTANOOGA — Catering to the urge to "keep up with the Jones" and to the housewife's desire for an attractive home produces residential air conditioning sales for the W. C. Teas Co. here.

Years of experience in the field has taught Teas that once the first installation has been made in a neighborhood, others will follow rapidly, provided the first is adequately publicized.

When Teas gets that first installation, he immediately aims a direct mail program at the neighbors. He gets their names and addresses from a city index.

The letter says, in effect:

"The Marshalls have air conditioned their home. Why don't you?"

The letter mentions, of course, that the Teas company made the installation. It gives a few pertinent facts about the job. It winds up by inviting the neighbor to let Teas send an experienced estimator-engineer around to figure costs on his home.

It isn't unusual, Teas says, for 25 such letters to produce a dozen active prospects within a week or so of completion of the initial installation.

With permission of the owner of the air conditioned home,

Teas is able to set up appointments so that interested prospects can see the installation.

Often, in such instances, the enthusiasm and pride of the homeowner is the most powerful sales asset that can be applied, he said.

"All of us can recall instances," he declared, "where a prospect has kept putting off purchasing air conditioning until someone in the neighborhood does. Keeping up with the Jones is a powerful influence in selling a \$1,500 air conditioning job."

One problem that Teas runs into is that sometimes a homeowner figures he can put in

room air conditioners throughout the house at less cost than installing a central system.

This may be true, but Teas has found that the housewife can be made to tip the scale in favor of central air conditioning.

While the husband is pondering the cost factors, Teas' salesman points out to the wife that with a central unit, there are no boxes jutting out from the house or into any rooms. There are no windows to be kept raised, no cords strung across the floor for power, no draperies swung out of line to make room for a cooler.

Instead, he points out, central air conditioner ductwork is furred into the ceiling, out of sight, while the add-on air conditioner takes up no additional floor space in the basement or utility room.

Showing the wife a centrally air conditioned home is usually the clincher, Teas indicated.



NEW SUNISO 3G REFRIGERATION OIL CUTS SERVICE CALLS ON "22-TYPE" UNITS

New dual-inhibited Suniso® 3G is specially formulated to prevent operating troubles in modern "22-Type" units operating at evaporator temperatures down to -40 F and with outlet temperatures up to 300 F.

Look at these features that reduce complaints and service calls:

NON-WAXING DOWN TO -85 F. No more waxing in expansion valves. No more plugged lines due to oil.

STABILITY UP TO 340 F. Protects against copper plating for 500 hours and more in accelerated tests (compared with 96 hours' protection by conventional oils). Designed to increase oil-refrigerant stability.

Suniso 3G is available in two grades . . . improved regular and new dual inhibited.

Servicemen can get new Suniso 3G from any jobber handling products distributed by Virginia Smelting Company.

Manufacturers can call their local Sun man or write

Industrial Products Department

SUN OIL COMPANY, Phila. 3, Pa.



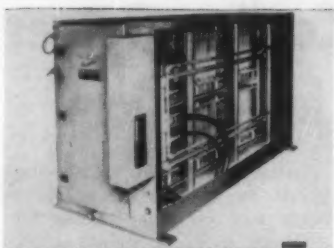
In Canada: Sun Oil Company Limited, Toronto and Montreal

'Precipitron' Air Cleaners Available with Fully Automatic Operation

"Precipitron" electronic air cleaners with fully automatic operation (model PG) are now available from the Sturtevant Div., Westinghouse Electric Corp., Dept. T-190 AC&RN, 200 Readville St., Hyde Park, Boston 36.

"In a complete range of sizes to handle requirements from 1,920 to 28,800 c.f.m., these units are especially suited for use in commercial establishments," it was explained.

"Washing and adhesive application on the air cleaners is com-

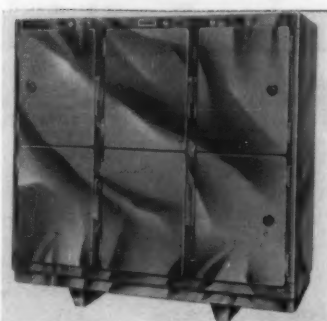


pletely automatic. In operation, a motorized traverse washer flushes out collected dirt from the

metal collector plates and sprays on a new coating of cold water adhesive. A pushbutton sequencing controller performs the entire cycle of stopping the fan, completing the washing cycle, and returning the system to normal service.

"For fully automatic maintenance, an optional clock control is available which operates the sequencing controller on a predetermined schedule for washing at regular intervals of from two to 21 days."

Koch Introduces Hot Food Cabinet Series



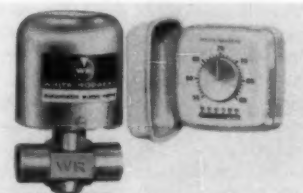
tions are each separately thermostatically controlled to hold different foods at different warming temperatures over the 100° to 300° range.

Each vertical two-door section is equipped with a dial thermometer, and humidity control, thermostatic control, and natural convection, stainless steel sheathed heating elements.

Cabinets are available with doors on front only, or in pass-through models with doors front and back. They may be set singly anywhere in the kitchen, or may be banked together, or with series M cabinets in normal temperature or frozen food temperature range, to make a single cabinet of any necessary length.

As part of the complete series M food handling system, Koch Refrigerators, Inc., Dept. AC&RN, 401 Funston Rd., Kansas City 15, Kan., has introduced the new companion series "MH" hot food cabinets engineered to hold accurately controlled temperatures of 100° to 300° F.

Series MH cabinets are regularly manufactured in one, two, three, or four-section widths. Sec-



Offers Zone Control For Hydronic Heating

A new zone control package for hydronic heating which provides multiple zone control using only one circulator and one relay is introduced by White-Rodgers Co., Dept. AC&RN, 1209 Cass Ave., St. Louis 6.

A "Fashion" thermostat and a small motorized water valve maintain the desired temperature in each zone, eliminating the need for extra circulators, relays, and flow control valves, thus greatly reducing costs, the company claims.

The valve is slow opening (45 seconds) which prevents "water hammer" and tends to blend the water temperature gradually, thus eliminating "expansion noises."

The valve is of rotary self-cleaning design, operated by low voltage and draws current only during opening and closing; requiring no current to hold it in open position.

The thermostat is specially "heat anticipated" to match the valve. It has a hinged cover that protects the dial.

The control packages of thermostat and valve are available with valves of 3/4 in., 1 in., and 1 1/4-in. pipe sizes.

Bleeder Valve Claims Corrosion Resistance

A bleeder valve made of corrosion-resistant polyvinyl chloride has been developed by the Walworth Co., Dept. ACRN, 750 Third Ave., New York City 17.

The Walworth bleeder valve can be used for bleeding, sampling, or drawing off small amounts of liquid

from pipe lines, duct systems, tanks, and similar applications. It has no packing and operates in the same way as a drain cock on an automobile radiator or steam boiler.

A seal formed by the back seat at the base of the valve stem insures tight closure. Left hand threading causes the valve to close when hand wheel is rotated in the standard, clockwise direction.

The valve is available in 1/2-in. size with male IPS threads. It can be screwed into any female threaded 1/2-in. fitting or fixture, or can be used with appropriate bushings for size adjustments.

Nor-Lake Manufactures Complete Line of Biological Refrigerators

A complete line of biological refrigerators is now offered by Nor-Lake, Inc., Dept. AC&RN, Hudson, Wis., manufacturer of commercial refrigeration equipment.

The units range from a 1.1-cu. ft. model to those of walk-in dimensions. Among common features are "Fiberglas" insulation,

hermetically sealed condensing units, heavy-gauge steel, baked white or black enamel, chrome hardware, and modern design.

The "Bantam" (1.1 cu. ft.) is portable and can be hung on a wall or placed on the top of a desk. Two other refrigerators, of 3 and 6-cu. ft. capacities, are floor models with full-length doors and

drawer compartments. A deluxe counter height model provides 12.8 cu. ft. of storage in seven roller drawers and a center compartment.

Reach-in models with up to 28-cu. ft. capacity and walk-in coolers with plug-in panel refrigeration are also included in the Nor-Lake line.

McQuay
Means Quality

FOR EVERY REFRIGERATION OR AIR CONDITIONING NEED

Pacemaker Unit Coolers. Ten models.

Radial Unit Coolers. Eight sizes.

Two Way Unit Coolers. Five sizes.

Space Miser Unit Cooler. Wide range of sizes in normal and low temperature units.

Ceiling Mounted ZEROPAK Product Cooler. Six compact models.

Hideaway Seasonmaker Air Conditioner. Four sizes, 1/2 to 5 ton nominal cooling capacity.

ZEROFROST Unit Coolers. Low temperature coolers in eight sizes.

Floor Mounted Seasonmaker Air Conditioner. Four sizes, 1/2 to 2 ton nominal cooling capacity.

Vertical Residential Evaporator. Five models in 2, 3, 4, 5 and 7 1/2 ton nominal capacities.

Aircon Air Cooled Condensers. Available up to 50 tons in a single unit.

Floor Mounted Product Coolers. Nine sizes, 4, 6 or 8 row coils.



Contact your nearest McQuay wholesaler, or write direct to McQUAY, INC. 1607 Broadway Street N.E. Minneapolis 13, Minnesota

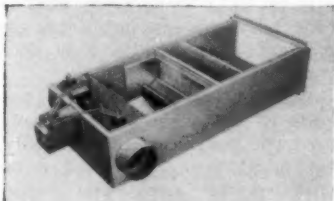
Reed Introduces New Tube Cutter

A new cutter for copper, brass, or aluminum tubing from 1/8 in. to 1 1/2 in. o.d. has been announced by Reed Mfg. Co., Dept. AC&RN, Erie, Pa.



Cutter wheel is in the spring-loaded, movable arm so that the cutter and tubing can be held in position with the left hand while the right hand tightens the screw.

Cutter also features a machined and hardened reamer which snaps open or closed as needed. The sharpened edges are said to cut the burr easily with no chattering or digging in.



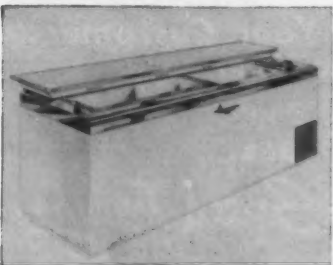
Double Duct Mixing Unit Aids Stabilization

A double duct mixing unit with a self-contained constant volume control is now available from Barber-Colman Co., Dept. AC&RN, Rockford, Ill.

Stabilization of double duct systems is simplified with this new unit which delivers constant c.f.m. while mixing hot and cold high velocity air and reducing it to conventional velocities at a minimum noise level.

Since it is available in octopus, open end, and integral diffuser types, it can serve one or a series of diffusers. Temperature control and volume regulation are treated as separate functions—operation of one cannot adversely affect the other.

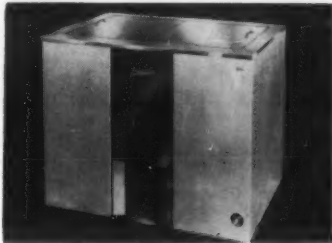
Self-operated constant volume regulating valve requires no power source or motor operator. It maintains constant c.f.m. delivery $\pm 5\%$ for hot and cold inlet air pressure differences as high as 5:1. A single manual adjustment lets you dial the c.f.m. required.



Anheuser-Busch Has Cabinet Converter

A new attachment which transforms its models GT-12, 16, or 23 into a counter top merchandiser, counter shelf, counter bar, or standard glass top merchandiser without extra parts has been introduced by the Refrigerated Cabinet Div., Anheuser-Busch, Inc., Dept. AC&RN, 721 Pestalozzi St., St. Louis.

The 16-in. wide counter top is constructed with a scuff-proof, heat-resistant surface, and is supported by heavy-duty Z-section frame. The edges are trimmed with aluminum moulding with the front edge designed for flavor strip display. A fluorescent light runs beneath the entire length of counter.



Howard Offers Wet or Dry Beverage Cooler

PHILADELPHIA—A wet or dry beverage cooler with modern "Sheer" lines, known as the "Zephyr 100," has been announced by Howard Refrigerator Co., Dept. AC&RN, 4745 Worth St., Philadelphia 24.

The new case features stainless steel top and lids and stainless steel insert center panel and compressor skirts.

Interior liners are furnished in galvanized, stainless steel, aluminum, or copper.

Improves 'Air-Con' Portable Charging Dolly

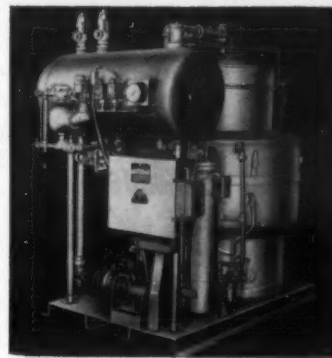
Improved design "Air-Con" portable refrigerant charging dolly is now in production by Allstadt Mfg. Co., Dept. AC&RN, 1922 S. Akard St., Dallas 15, Texas.



The dolly visibly measures any desired precision charge of refrigerant. Equipped with accurate tested pressure gauges and a "Freon" measuring tube with a capacity of 40 liquid ounces, the dolly has heavy-duty rubber tires and handles "Freon" cylinders up to 145 lbs.

Calibration is in 1-oz. graduations. The price is \$165 f.o.b. Dallas.

Boilers Fill Wide Range of Requirements



hour) boiler occupying 40 sq. ft. "High heat transfer efficiency results in 1.6 sq. ft. of heating surface per boiler horsepower," it was stated. "Total heating surface of 245 sq. ft. for the 150-bhp. unit means that in many areas the boiler can be operated unattended."

Drum Modulators burn oil (No. 2 and No. 5), gas, or combination gas/oil, and are available in six sizes from 20 to 200 bhp. Operating pressures go up to 150 p.s.i. with safety valve setting of 165 p.s.i. (pressures to 1,000 p.s.i. on request).

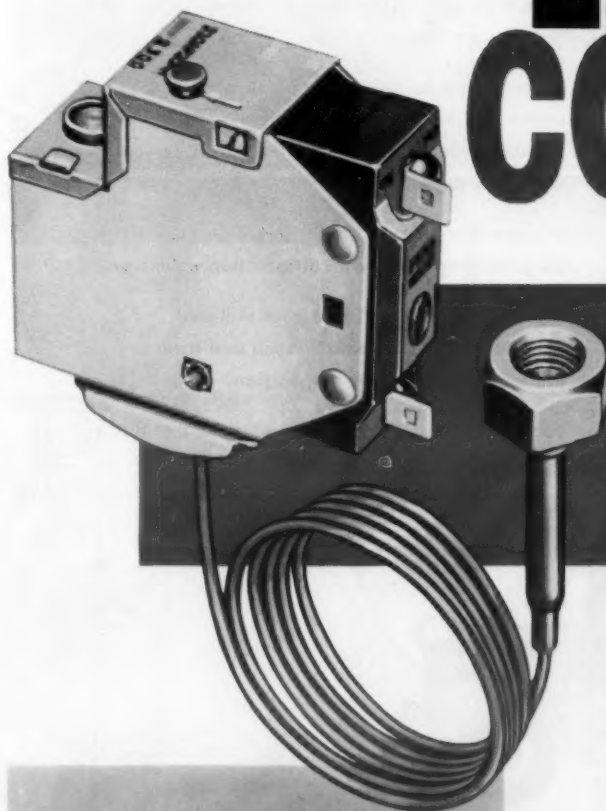
A complete line of water tube boilers—its "Drum Modulator"—fill a wide range of heating and air conditioning requirements, according to Vapor Heating Corp., Dept. AC&RN, 80 E. Jackson Blvd., Chicago 4.

The boilers are compact, with the 150-bhp. (5,000,000 B.t.u. per

SEND FOR REPRINTS
Product Knowledge, Protective Maintenance, Trouble-Shooting, Adjustment, Repair of Electric Motors.
Only 40¢ each.
For your copy, clip this ad and mail with name and address to: Air Conditioning & Refrigeration News, 450 W. Fort, Detroit 26, Mich.

NEWEST LIMIT CONTROL

Full size illustration of the Series 210 limit control for water or air cooled residential and commercial air conditioning.



specifically designed
for air conditioning

more and more manufacturers
are using the Penn 210 for
packaged air conditioning . . .

Entirely new . . . entirely different from any controls available up to now . . . the Penn Series 210 pressure controls are specifically designed to meet the requirements of packaged residential and commercial air conditioning.

Compact . . . smaller than a pack of cigarettes . . . the 210 is ideal for panel mounting or in limited space. New, patented power element is more rugged to assure accurate repeat performance. Contact unit, in either SPST or SPDT action, is totally enclosed. Both high and low pressure controls are factory set to buyer's specifications for use on R-12 or R-22 and are not adjustable in the field. And, there are many other advantages . . . write to Penn for the complete story!

PENN CONTROLS, INC. Goshen, Indiana
EXPORT DIVISION: 27 E. 38th ST., NEW YORK, N. Y.

SERVICEMEN . . . REMEMBER THIS!

You have a big advantage when packaged air conditioning is equipped with the Series 210. Pressure adjustments are sealed to prevent customer tampering. Thus, unit installation is simpler and service call-backs are minimized because this rugged, "tailored-to-the-unit" control assures better, longer, more accurate performance.

What's Going On in Commercial Refrigeration

News of Markets, Products, Methods

**NCRSA Service Dept. Survey Shows
29% Made Profit, 21% Broke Even
On Average Mark-Up of 53% In '57**

PHILADELPHIA—Nearly all commercial refrigeration distributors participating in a survey on their service activities indicated that they broke even or made a profit on service.

Most also told the National Commercial Refrigerator Sales Association, which conducted the survey, that their

service activities are increasing.

The survey covered 48 distributors from all sections of the United States and Canada and included all categories both large and small.

NCRSA found them taking an average mark-up of 53% on service and maintaining an average inventory in service parts and supplies of \$13,787.

Ratio of service operations to total sales among participating companies ranged from 1 to 50%, with the average at 13%.

Twenty-nine per cent of the distributors reported a profit on service, 21% broke even. Forty-four per cent did not know or did not reply, while only 6% reported a loss.

NCRSA's report on the results of the survey, which covered the year 1957 or the nearest fiscal year, presented data supplied by each distributor without revealing his identity.

It did, however, classify each as to area of country, size of operation, and type of trading area (urban or rural).

Data was acquired on a wide variety of subjects. All contractors did not answer all questions, though enough answered each to give a representative pattern.

One category of questions covered straight hourly service charge, minimum charge, overtime rate, and mileage charge.

Straight hourly service charges ranged from a low of \$2.50 in the south to a high of \$7.50 on the west coast. These are not averages, but rates reported by individual distributors. Median rates ranged from \$3.50 in the south to \$6.50 on the west coast. In the northeast (from Maryland to Maine) the median was \$4.50 and in the midwest, \$6.

Minimum charge ranged from \$3.25 on the west coast to \$10, also on the west coast. In the

(Concluded on next page)



A Salute...

to the men who install
and service

Hussmann equipment

There's many a VIP on the Hussmann Team . . .
from those who design our equipment . . . to
the men on the selling line.

But one thing for sure . . . none play a bigger part
in the Hussmann success story than our
distributors and the men who install and service
Hussmann equipment.

We spend millions of dollars to create facilities
for producing the finest refrigeration equipment.

Yet we know full well that your skill and
workmanship add the final touch that assures
the merchant complete satisfaction.

To you . . . the men in the field who add that touch
. . . a salute from Hussmann.

HUSSMANN

Hussmann Refrigeration, Inc., Hussmann Building, St. Louis 6, Mo.

Hussmann Refrigerator Co., Limited, Brantford, Ontario, Canada

STORAGE AND DISPLAY REFRIGERATORS • CHECKOUTS • SHELVING • REFRIGERATION FOR FOOD STORES LARGE OR SMALL

**Your Customers'
Best Buy. . .**

(and yours, too!)

IDEAL

Speed-Freeze

PRODUCTS

BEVERAGE COOLERS

unexcelled storage
capacity with
Ice Cube Makers

**OUTSTANDING
SECTIONAL METAL
WALK-IN COOLERS**

IDEAL

COOLER CORPORATION

2830 MAGAZINE ST.
ST. LOUIS 8, MO.

Weber Showcase Celebrates 60th Anniversary

Firm's 1958 Sales Seen Setting Record

LOS ANGELES — Weber Showcase & Fixture Co. sales this year are running "slightly above" 1957's record high of \$30,375,852. President Karl Weber revealed at the company's 60th anniversary celebration attended by some 250 southern California business, industrial, and civic leaders.

Weber estimated 1958 sales would exceed \$31,000,000, "a historic high in which all divisions of the company—commercial refrigeration, store fixture, 'WeberWall,' laboratory equipment, food service equipment, glass machinery, and aircraft played important parts."

On one recent day, it was noted, 19 truckloads of Weber products left Los Angeles to speed orders to their destinations.

Weber Showcase had its origin in 1898 when Fred Weber, Sr., a young Swiss cabinet maker, opened a small shop in downtown Los Angeles. It prospered and expanded with southern California over the years until, today, it operates four manufacturing plants with sales offices in every principal American city and with dealers throughout the world.

The company was one of the first to expand its markets eastward from a western base.

Service Survey --

(Concluded from preceding page)

northeast, minimum charge was \$4.50 or \$5; in the south \$3.50 to \$5; and in the midwest from \$5 to \$7.

Overtime rate ranged from \$3.25 in the south to \$14 on the west coast. In the northeast, the range was from \$4.50 to \$12 with the median at \$6. In the south the high was \$5.25 and the median \$3.25. In the midwest, rates ranged from \$6.50 to \$10.88 with the median at \$8.25. On the west coast, low was \$6 and median \$9.75.

Mileage charge ranged from none to 15 cents per mile, with the median at 10 cents per mile in all sections of the country.

Hourly rate for installations ranged from \$2.50 to \$7 on the west coast. In the northeast, the range was from \$3.50 to \$6.25, with the median at \$4.50. In the south, high was \$6.25 and median \$3.25. In the midwest, range was from \$3.75 to \$6.80 with the median at \$5.10. On the west coast range was from \$6.50 to \$7.

Installation overtime rate ranged from a low of \$3.25 in the south to \$14 on the west coast. In the northeast, range was from \$4.50 to \$13.50 with the median at \$5.70. In the south, high was \$7.50 and median \$4.50. In the midwest, range was from \$3.75 to \$13 with median at \$7.75. In the west, low was \$13.

Majority of the distributors on the east coast and south operated non-union shops. Majority in the midwest operated union shops. All on the west coast has union shops.



LOS ANGELES Chamber of Commerce President George Gose (left), and Karl Weber, president of Weber Showcase & Fixture Co., Inc., inspect photo murals of Weber Los Angeles plants—at turn of century and today. Gose presented Business Achievement Award plaque to Weber on the pioneer West Coast firm's 60th anniversary.

'World's Only Ice Fall' Installed at Giant Open Air Market

PORTSMOUTH, Va. — "The World's Only Ice Fall" is a feature of the new Giant Open Air market opened here recently.

The ice fall is created by directing about 10% of the production of a 10-ton capacity ice flaker onto a display of melons and vegetables.

The ice maker is mounted on the floor above and drops most of its flakes into a bin behind the rear wall of the produce display. But a portion slides through a chute onto the display producing the ice fall.

The bulk of the ice flakes, of course, is used in other areas of the store.

Store management says the ice fall was invented and designed by and for Giant Open Air market.

Cornell Offers Full Degree Course In Food Facilities Engineering

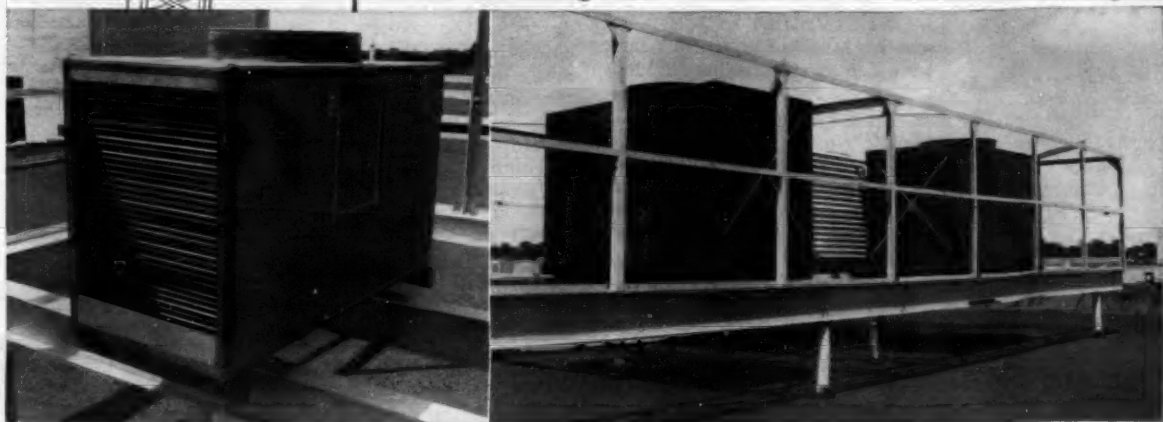
ITHACA, N. Y. — Establishment of a full degree course in "Food Facilities Engineering" has been announced by Cornell university.

Food industry leaders are engaged in a fund raising campaign to insure continuation of the course at Cornell's School of Hotel Administration.

Refrigerator sizes and construction, refrigeration and air conditioning theory and shop are among the many subjects required of students in this new degree course.

Other major studies will include architecture, electrical and mechanical engineering, food and food science, economics and finance, administration, and accounting.

Durability and dependability



go up with MARLEY[®] PERMATOWERS

... That's why Permatowers were selected by major national and local merchandisers in mid-America's newest modern shopping center, Blue Ridge at Kansas City, for air conditioning and refrigeration requirements in their stores.

Marley Permatowers are the newest of packaged cooling towers and are designed for maximum resistance to corrosion. They combine the time-proved design principle of Marley industrial double-flow towers with such new time-proof design features as distribution manifolds, internal piping and depressed sumps molded of Kralastic type resin; polyester resin reinforced fiber glass fan cylinders, and casings of water-proof laminated panels with resin-impregnated fiber surfaces. The result is PERFORMANCE with PERMANENCE that make Permatowers the premium package for jobs that impose most rigorous service conditions.

Permatowers come "ready for work" in 11 sizes that cover a wide range of commercial and institutional water cooling requirements. For complete information on "the towers that time can't touch", write for bulletin PT-58, or call your Marley application engineer in 56 cities.

Marley equipment and components covered by U. S. and Foreign Patents and Patents Pending

The Marley Company

Kansas City, Missouri



Chilled Beer Draws New Customers



CHILLED BEER on a self-service basis is said to have increased sales of the Liquor Circus in Westville, N. J. by 15%. Previously, chilled beer was stored in a cooler adjacent to the shopping area and supplied to customers only upon request. Over 35 imported and domestic varieties are stocked by the Liquor Circus. Six packs and quarts are featured.

15% Rise In Sales Attributed To New Self-Service Case

WESTVILLE, N. J. — Beer sales increased some 15% after the Liquor Circus here added a 15-ft. refrigerated case where shoppers can see the chilled beer.

Previously, the chilled beer was stored in a cooler adjacent to the store area and customers were only served from it upon request.

"Seeing chilled beer is in itself an incentive to buy," explains owner Sam Pearl, "and our sales took an upturn as soon as we installed the new case. Up to this point, most sales were warm beer and this discouraged the traffic that wanted beer for immediate consumption."

Over 35 imported and domestic varieties are stocked by the Liquor Circus. Six-packs and quarts are featured.

Since installing the new cooler, this store has attracted a following of new customers. Many businessmen and employees enjoy a bottle of chilled beer before the dinner hour and having it available for them has brought in this traffic. Many homemakers also buy chilled beer in addition to the warm so that they have a bottle for immediate home use. As a result, 75% of the customers buying warm beer, also buy chilled.

The word "self-service" printed across the beer cooler incites shoppers to help themselves even if beer was not on their shopping list.

The new cooler is located in the center of the self-service liquor store so that it is passed by all shoppers. In addition, the case has its own lighting to help attract attention.

"Because of the decided sales increase that we have enjoyed with this new case, we intend to add an additional one before long," Pearl said.

Canada Dry OK'S Vendor

LA CROSSE, Wis. — Canada Dry parent owned bottling plants now have the La Crosse coin operated selective venders available to them with full parent company approval, it was announced by La Crosse Cooler Co.

Scotsman Promotion Points Up Need for Ice During Holidays

ALBERT LEA, Minn. — "Strike Holiday Gold with Scotsman Ice" is the theme of a campaign now being launched by Scotsman—Queen Products Div. of King-Seeley Corp. here to stimulate fall and winter sales of "Scotsman" automatic ice machines.

"The new campaign is a follow-up to the highly successful spring and summer campaign which was built around a two-color, newspaper-size broadside, printing of which ran well over a million copies," the company said.

"The fall campaign offers dealers and distributors a dramatic, gold and black mailer which emphasizes that ice needs increase during the holidays and which stresses the low cost of Scotsman ice."

The mailer is designed to draw requests for the new 44-page "How To Use an Ice Machine" booklet published by Scotsman. The illustrated book describes the history of ice machines, discusses ice use in many industries, and offers suggestions on how to merchandise ice.

"How To Use an Ice Machine" and other campaign materials are available from the company.

Research Shows

Changing Arrangement Of Freezer Boosts Uniformity, Cuts Costs

CORVALLIS, Wash. — Changes in arrangements of commercial freezers tried by researchers at Oregon State college here have resulted in more uniform freezing, power savings of up to 80%, and reduced air movement.

A project under the direction of George Thornburgh, assistant professor of mechanical engineering, found that more uniform freezing resulted by placing food on loading frames so that they were in a simulated freezing tunnel rather than conventionally stacked.

This greatly reduced variations in air distribution and, by changing the arrangement of blowers, resulted in better circulation and penetration.

The research, begun 30 months ago, was done under grant from the U. S. Department of Agriculture.

Charles Dieringer Dies

MILWAUKEE — Charles Dieringer, 74, a former president of Federal Refrigerator Mfg. Co., died recently.

Hussmann's Unfilled Orders Top '57

ST. LOUIS — Although consolidated sales for the first six months were 1.3% below the same period in 1957, Hussmann Refrigerator Co. reported that unfilled orders on June 30 were substantially in excess of a year earlier.

"A 17-day strike in our two St. Louis refrigerator plants prevented shipments in the first half of 1958 exceeding those of 1957 and, of course, the interruption of operations also adversely affected profits," W. B. McMillan, president, explained to stockholders.

"Demand for food store equipment and the rate of construction of new stores and major remodeling programs continues at a high level," he observed, "both with respect to chains and independent operators. Prices continue substantially lower than prevailed during 1957."

McMillan pointed out that licensees in Great Britain, France, and Australia made more favorable reports and a new manufacturer in Mexico was licensed last January. This is American Refrigerator Products, S.A. de C.V.

SELL MORE... with the COMPLETE line FROM LA CROSSE



The New KOOL' KLOSET

Extra refrigeration space... at rock bottom cost. The KOOL' KLOSET has removable, self contained refrigeration system, grey baked enamel exterior, sizes 34" and 62" width.



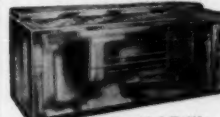
Direct Draw Refrigerated Faucets



Upright Low Temperature Freezer



La Crosse Self-Contained Bottle Cooler



Bluebird Bottle Cooler—Remote



Edwards Airvec Supplies 90 Tons Of Air Conditioning To New Bowling Center

EDWARDS Airvec Condenser Utilizes Convection Principle. Eliminates Noise, Motors, Maintenance, Structural Problems.

Heat rising from the horizontal condenser creates a chimney-like draft that continues to draw fresh air through the unit. Manufactured in 2, 3, 5, and 7½ ton basic sections, which then can be assembled in multi-sections for unlimited capacities up to hundreds of tons.

This principle eliminates: Noise, Motors, Wiring, Maintenance, Operating Problems. WRITE Airvec Dept.,

Edwards Engineering Corp. Manufacturers Agents Inquiries Invited.

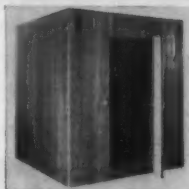
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Air conditioning equipment* for large buildings is bought and installed by readers of the NEWS

WHO SPECIFIES OR BUYS?

Engineers who are employed by all four of the most important factors: (1) large air conditioning contractors, (2) consulting engineers and architects, (3) large buildings and factories, and (4) the OEM manufacturer—any one or all can affect the sale of your product if it is to be installed in a large building. As consulting engineers will tell you and as you know, there are very few "closed specifications." The vast majority is "or equal" or "open end"—by type but not by brand name. Therefore, to get the most effective sales results, you want to influence more than just one engineering group. You should sell all the buying factors. AIR CONDITIONING & REFRIGERATION NEWS can do this job most effectively.

HOW MUCH WILL THEY BUY?

Estimates indicate a total volume of ten billion dollars over the next ten years. Aside from new construction, the saturation of air conditioning installations in offices is less than five per cent, and in factories—less than one per cent. In 1957, this market was estimated at nearly 600 million dollars, a gain of almost fifteen per cent over 1956. This increase was the largest in the industry.

* WHAT PRODUCTS DO THEY BUY?

In addition to air conditioning units and their usual accessories, such as condensers, cooling towers, coils, refrigerants, and motors, engineered air conditioning systems for large buildings, factories, etc. require such items as ducts and duct materials . . . controls . . . piping . . . insulation . . . air moving equipment . . . air cleaning and washing systems . . . pumps . . . diffusers and grilles . . . boilers . . . heat exchangers . . . furnaces . . . dehumidifiers . . . humidifiers . . . vibration eliminators.

WHAT DO THEY READ?

Just as you depend upon your newspaper for the latest news and information, so do these contractors and engineers turn to AIR CONDITIONING & REFRIGERATION NEWS for the timely facts and information concerning their job, their industry. The NEWS is the only weekly and the only newspaper in the industry. (And it has a 32 year history of dependable accuracy.)

Every Monday morning they pick it up — and start reading! There is no other complete news source available to them and, once read by the subscriber, it is passed along to others in the company (on an average of more than four.) The NEWS contains the latest news stories on installations, products, and ideas every week—the kind of information contractors and engineers need.

In 1957, advertisers of air conditioning units and components for engineered systems used more than twice the volume of advertising in the NEWS as in any other industrial publication. Contact your local NEWS representative or write for more facts on how the amazing advertising power of the NEWS can help you get a bigger share of the large building market.

**AIR CONDITIONING
& REFRIGERATION**

The Weekly Newspaper of the Industry

RESIDENTIAL — COMMERCIAL — INDUSTRIAL

NEWS

*The leading air conditioning publication
with highest paid circulation in the field.*



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Report on Education

In This Series:

- MANUFACTURERS**—What do servicemen think of your factory schools? What would educators like from you?
- SERVICEMEN**—How much advanced training is available? Where?
- BEGINNERS**—What kind of school should you attend? Cost? How long to complete training? Apprenticeship programs.
- INSTRUCTORS**—How do other instructors teach? Handle questions? Test students?
- ENGINEERS**—What's available at the college level? Why so little?

By Frank J. Versagi, Technical Editor

2. Engineering Colleges

When one looks at the cooling courses offered at engineering colleges around the country, he must reach one of two conclusions.

Either the colleges and universities have not heard that the air conditioning and refrigeration industry is a tremendously expanding one with an enormous appetite for engineers and technical people. Or those people are correct who evaluate cooling engineering as somewhat of a lesser field whose apparent appetite for engineers can be

appeased with sub-engineering personnel.

Repeatedly, we found engineering schools having difficulty attracting students to the air conditioning and refrigeration curriculum. Colleges and technical institutes around the country are reducing or dropping this curriculum. Cooling courses rate low in popularity when compared to glamor fields like electronics, nucleonics, and rocketry; they rate low even when compared to prosaic fields like automotive engineering.

One educator who feels strongly that the cooling industry is a high caliber one insists that the industry must find some way to establish itself as one of prestige in educational circles and in public acceptance. "At the present time," he says, "it is generally looked upon as a somewhat specialized field in which students who are not truly qualified as engineers can find gainful employment."

A consultant hired to study higher education in California found some refrigeration graduates employed by a consulting engineer and earning good in-

comes. In his evaluation, however, he insisted that to prove themselves true engineers they would have to demonstrate their abilities in other fields.

Judging further by the courses offered and by the attitudes expressed by some educators and professional engineers, the refrigeration engineer is low on the totem of engineers.

Few Colleges Offer Major In This Field

Of the scores of colleges surveyed by the NEWS, extremely few offer a major in air conditioning and refrigeration.

By far the greatest number of colleges offer only electives in heating, ventilating, air conditioning, and refrigeration. In a few cases, one elective is offered which purports to survey these several fields.

Typical of what we found are: Massachusetts Institute of Technology offers individual courses in air conditioning, heating, and ventilating, and refrigeration as electives in its mechanical engineering curriculum. These courses are "not as popular as jet propulsion, rocketry, and automotive engineering."

Carnegie Institute of Technology offers no courses at all in refrigeration or air conditioning except where these fields are touched upon as part of thermodynamics and other courses.

At the other extreme, California State Polytechnic college (not to be confused with California Institute of technology) offers a B.S. in engineering with a major in air conditioning and refrigeration.

The University of Houston has a formula which it has found successful for education in the cooling industry.

First, it offers a certificate of completion for a course which is basically like that of an advanced trade school. If the student chooses to go further with his schooling, he can add the necessary humanities and get an Associate Degree in Applied Science.

Then, all of these credits can be applied toward a B.S. in engineering with a major in air conditioning and refrigeration.

A similar setup exists at Milwaukee School of Engineering.

Marquette university, Milwaukee, has a co-op setup which allows students to work in related industries during acquisition of the B.S. in mechanical engineering.

Professional Educators See Little Need for College Level Course

Actually, the number of schools which offer other than nominal college-level courses in refrigeration engineering is limited. In great part, this is due to the fact that most professional educators are not convinced that the field calls for college level training.

One professor whose school offers only a couple electives in the field insists that the total subject matter in air conditioning and refrigeration is not enough to warrant a major in an engineering curriculum.

"Without running the field down in any way," the professor holds, "the truth is that a service engineer or application engineer can be made on the spot

with only a few months training at his place of employment. Creating a design engineer might take a little longer, unless the fellow were already a mechanical engineer."

"Since it is so easy to make engineers (really technicians) in the field, we cannot justify setting up a full curriculum."

In the field of education in general, there is the controversy between those who feel that the function of education is to turn out specialists and those who feel education's proper role is to produce broadly educated persons who can specialize after employment.

In this case, mechanical engineering is usually the broad base considered desirable for the air conditioning or refrigeration engineer—although there are those who dispute that mechanical engineering is broad in the true sense of the word.

Another educator who feels that cooling courses are not justified at the full college level holds that those colleges which do offer such courses are doing so in response to local political and economic pressures, not because they feel the courses are justified academically.

As a result of this lack of high level refrigeration training, 99 and 44/100% of air conditioning and refrigeration engineers are reformed mechanical or electrical engineers. The rest are chiefly self-trained, up-through-the-ranks engineers.

Shortage Could Be Reduced by Not Using Engineers As Technicians

Discussions with educators and industrial leaders—and with alert staff engineers—brought out one commonly accepted premise. The real or alleged shortage of engineers could be reduced rapidly if industry would treat engineers like engineers instead of assigning them routine tasks better performed by technicians.

In fact, it would help considerably if the word technician could assume its proper place in our vocabulary and hierarchy. A technician is really a person whose training and work places him above the skilled worker but below the actual engineer.

Correcting this abuse of engineers, by itself, would greatly ease whatever shortage of engineers exists.

At either the engineer or technician level, it is difficult to obtain agreement on what academic and technical subjects should be included in college training.

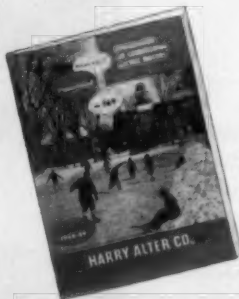
At one extreme there are those who hold that "knowledge of the Peloponnesian Wars doesn't add one bit to a man's ability to design an electric motor." These people, both educators and industry people, would have the colleges turn out specialists trained in specific fields so that graduates could become profitable employees in a very short time.

At the other extreme are those who long for the good old days when the only college degree of any import was the Liberal Arts Degree. A man came out of college with a "rounded knowledge of mankind" and specialized after he got into industry.

(Next: More on Engineering Colleges)

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ASHAE and ASRE Summarize Merger Plan--

(Concluded from Page 1, Col. 4)
(c) Industrial (d) Transportation (e) Food Technology (f) Cryogenics.

3. Air Conditioning and Ventilation

(a) Units and Equipment (b) Residential (c) Commercial (d) Industrial Ventilation (e) Industrial Air Conditioning (f) Evaporative Cooling.

The ultimate board of directors (presently designated as Council) would consist of 24, including the president, first and second vice presidents, treasurer, one past president, nine directors-at-large (to be selected by the usual nominating procedure with an equitable representation of the major membership interests—heating, refrigeration, and air conditioning and ventilation), and 10 regional directors.

Headquarters staff would be directed by the executive secretary and a projected supporting group totaling 33, as compared with the aggregate 50 now represented in the separate staffs. This would be supplemented by a research group, totaling approximately 21.

Publication Plans

The official ASHRAE journal or magazine (name as yet not determined) would be primarily a high-level technical publication representative in subject matter of the balanced interests of the entire membership. Coverage of the specific areas of interest would be encouraged in the published material, and suitably identified. Other publications would include an annual Handbook or Guide and Transactions, an annual summary of meetings, papers, and discussion, and miscellaneous publications.

An exposition, covering all areas of membership interest, would be continued on a biennial basis.

Technical Activities

Technical activities would be administered through a Research and Technical Committee, working through technical committees which would function in a similar manner to the present Technical Committees and Technical Advisory Committees.

The Research Program would be administered by a committee of 12 members. A research laboratory would be maintained with a trained staff for conducting and coordinating research in the fields of interest of the membership, and for the benefit of the public. The society would cooperate with universities, colleges, schools, and other groups, in the investigation of research subjects, subject to the proviso that all such activities would be devoted to the public welfare and general benefit and would not be designed to promote any individual, private, or commercial interest.

Financial support for the Research program would come from an allotment from dues as

determined by the board of directors and from contributions from foundations, and others.

Development of standards would be continued on an accelerated basis.

Meeting programs would be encouraged in all the various areas of interest with the inclusion of technical sessions, conferences, forums, symposia, and other means. It is anticipated that concurrent technical programs at annual and semi-annual meetings will be held.

Local Chapter Consolidation

The merger plan proposes various methods of consolidating local ASHAE chapters and ASRE sections, at the option of the local groups. The arrangement of chapter programs to cover the broad interest of the

merged society will depend to a large extent on local conditions. Several methods of handling the local situation would be available and subject to the local choice.

Chapters would have the privilege of organizing divisions according to technical interest in those cases where the local groups desire flexibility in the planning of their programs.

Chapters would be supported financially by the society with supplementary local dues at the option of the chapters, with the approval of the board of directors. The plan does not contemplate any change in the status of the reserve funds of present ASHAE chapters or ASRE sections. The disposition of existing reserve funds would be at

the discretion of local groups. Present regions of the societies would be realigned to form 10 regions, initially, and would be under the supervision of the regional directors and the regions central committee. Regional meetings on an annual basis would be required.

Details related to several committees were noted in the summary.

The nominating committee would consist of 18 members: one member from each of the 10 regions; six members selected by the board of directors to represent the major areas of member interest, two for heating, two for refrigeration, and two for air conditioning and ventilation; one member chosen from the previous nominating committee; and the immediate eligible past president, not a member of the board of directors, as chairman.

The divisional advisory committee would consist of nine members-at-large of the board of directors, three each being selected from the heating, refrigeration, and air conditioning and ventilation areas of membership interest, and each of whose major interest would be in the specific category represented.

It would be the duty of this committee to review, and advise the board of directors or the executive committee when it deemed that any phase of membership professional interest was not being adequately represented or organized.

Also, it would be the duty of this committee to report in detail at each meeting of the board of directors the degree to which each area of professional interest was being served or recognized in the activities of the society.

NOW...FROM REMCO

MOLECULAR SIEVE FILTER-DRIERS

WITH DEPTH FILTRATION

Utilizing advanced design Molecular Sieve cartridges, these new Remco Filter-Driers combine unequalled drying efficiency, effective acid removal, generous flow capacity and depth filtration. The massive depth filter completely removes all scale, sludge, carbon and other particles as small as 100 microns, without affecting flow or pressure drop. In addition, there's a fine mesh outlet screen.

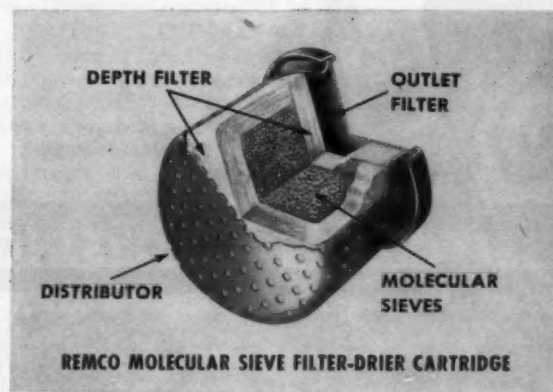
Large quantities of moisture are adsorbed and retained even at refrigerant temperatures of 140 F. Moisture concentrations are held to 10 p.p.m. or less, and acids reduced far below dangerous corrosion limits. Refrigerant and oil are not adsorbed.

Compact in size, Remco Molecular Sieve Filter-Driers are great space savers and work equally well in the hot machine compartment, the refrigerated space, or a hot equipment room. U/L Approved, the working pressure is 500 p.s.i.; minimum bursting pressure, 2500 p.s.i. The filter-driers may be used for Refrigerants 12 or 22, Carrene, or methyl chloride.

REPLACEABLE CARTRIDGE TYPE units come in 3 basic sizes and have a single cartridge which can be easily installed or replaced. An "O" ring provides a positive, leakproof flange seal. From 3 to 40 tons with $\frac{1}{8}$ " thru $1\frac{1}{2}$ " sweat connections.

SEALED TYPE filter-driers are available in 4 basic sizes, 1 to 12 tons, with $\frac{1}{4}$ " thru $\frac{3}{8}$ " flare and $\frac{3}{8}$ " thru $\frac{1}{2}$ " sweat connections.

"T" FITTING TYPE supplied in 2 basic sizes, 2 to 6 tons, bring all the advantages of Remco Molecular Sieve Filter-Driers to systems having standard "T" fittings.



Remco Filter-Driers are available at leading wholesalers everywhere. Ask your wholesaler for more information, or write for Bulletin MS-1. Remco, Inc., Zelienople, Pa.

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MANUFACTURERS OF ADVANCED REFRIGERATION PRODUCTS
FILTER-DRIERS • LIQUID INDICATORS • RECEIVER-DRIERS
CHECK VALVES • SAFETY DEVICES • FROST-TITE FLARE NUTS



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Only 40¢ each.

For your copy, clip this ad and mail with name and address to: Air Conditioning & Refrigeration News, 450 W. Fort, Detroit 26, Mich.

Air Distribution Requirements In Year-Round Air Conditioning

Part 2-Fundamentals of Air Handling

By Frank D. Klein, Chief Engineer, Governair Corp.

Ratio of Velocity in Branch To Velocity in Main Duct

| Take Off Angle | 0.4 | 0.6 | 0.8 | 1.0 | 1.5 | 2.0 | 3.0 |
|----------------|-----|-----|------|------|------|------|------|
| 90 Degree | 6.5 | 3.1 | 2.0 | 1.5 | 0.95 | 0.74 | 0.62 |
| 60 Degree | 5.0 | 2.2 | 1.3 | 0.77 | 0.47 | 0.47 | 0.58 |
| 45 Degree | 3.5 | 1.3 | 0.64 | 0.43 | 0.40 | 0.45 | 0.54 |

The ASH&AE Handbook gives a short table (1958) that briefs the ratio of pressure loss to Branch Velocity Pressure, which, as shown above, should become a part of our every day application tools.

From experimental data gathered, losses at branch take-offs indicate that the loss in the straight duct section amounts to approximately 35% of that for the abrupt expansion or enlargement as previously discussed.

and involve the same ratios of velocities.

Furthermore, it is indicated that the loss in the "diverted flow section" is acutely dependent on the "ratio of the velocity of the diverted flow to total flow and on the angle the take off takes with the main duct." It is at a minimum for a natural relation that might exist between these two variables.

In general, if we will return to that typical ductwork used in connection with the rating of fans as in Figs. 18 and 19 of the previous text, we can accept the basic rules that ABRUPT EXPANSION in ductwork should be avoided; that the limit of Abrupt Expansion should be based on a maximum of 15° change between one section to another.

Data gathered in this connection shows that air moving from one section of ductwork to another where a change in expansion takes place, smaller to larger section, will expand ap-

proximately 7° in any direction. Practical application for transition should be based on this.

To brief the foregoing information on ELBOWS, we might say that for good practice Elbows should have an inside radius equal to 1.5 times the depth or diameter (in the case of round duct) of the duct. In the movement of both warm and cold air through the same duct, good practice indicates square turns, rather than elbows with detailed turning vanes constructed as the actual "Elbow" on the inside of the duct.

To brief the foregoing on Branch Take-offs, accept the rule that branches should not leave the main duct at more than 45°. Here once again where construction does not permit, turning vanes and the like may be used to facilitate the flow in unusual take-offs.

(To Be Continued)

Humidity May Aid Spread of Bacteria

FREDERICK, Md. — High relative humidities may contribute to the spread of airborne diseases, two scientists from the Army Chemical Corps Biological Warfare laboratories at Fort Detrick here calculate.

In a paper published in the *Journal of Applied Microbiology*, Dr. James M. Beebe and Mrs. Gerda W. Pirsch report that the higher the humidity, the longer the life space of disease-producing bacteria.

Germs, they explain, are killed off by sunlight in direct proportion to the intensity of that light. Sunlight's germicidal action is limited, though, by the amount of moisture in the air. At high humidities, it may be entirely absorbed by moisture.

to the highest standards, priced for the competitive market with exclusive sale features and outstanding dealer and consumer appeal? If you mean business, this is your opportunity to associate yourself with the fastest growing company in America. Contact Larry Melody, Sales Manager, MIAMI PRODUCTS, INC., Miami, Okla.

PROJECT ENGINEER—Capable of handling small self-contained air conditioners from original design into production. Sheet metal and manufacturing experience desirable. College man preferred. Salary commensurate with position. REMINGTON CORP., Auburn, New York. Attention: A. E. Reiss, Director of Engineering.

WANTED, SALES Engineer for Southwestern territory by national manufacturer of refrigeration, heating and air conditioning equipment. Applicant must now be living in Houston, Dallas or Fort Worth, Texas and must be well qualified to work with distributors, contractors, architects and consulting engineers. All replies held in confidence. Reply to BOX A6087, Air Conditioning & Refrigeration News.

MANUFACTURERS' REPRESENTATIVE for commercial refrigerator manufacturer. Several desirable territories open. Activities to include contacting distributors, dealers, and food chains. Give details as to experience, territories in which you can give complete coverage, and industry references. Replies held in confidence until interview. BOX A6090, Air Conditioning & Refrigeration News.

SALES EXECUTIVE: Opportunity for a successful sales executive to establish himself with a commercial refrigerator manufacturer that has a challenging opening and future. Experience and following in commercial and super-market equipment absolutely necessary. All replies will be held confidential until after interview. Give full experience and statistics in first letter. BOX A6091, Air Conditioning & Refrigeration News.

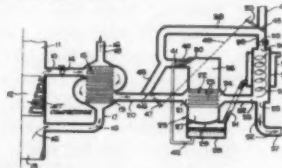
EQUIPMENT FOR SALE

MODEL HH 2 h.p. automobile air conditioning compressors tapered shaft, vertical mount, complete with flywheel \$33.95. Send for free circulars and catalogs on money saving refrigeration & air conditioning parts and supplies. WALTER W. STARR, 2833 Lincoln Ave., Chicago 13, Illinois.

PATENTS

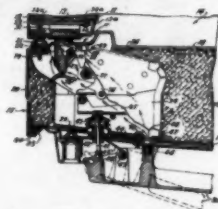
Week of June 24
(Continued)

2,839,901. EVAPORATIVE VORTEX TUBE REFRIGERATION SYSTEMS. Frederick H. Green, Los Angeles, Calif., assignor to The Garrett Corp., Los Angeles, Calif.



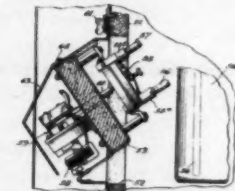
1. In means for cooling a stream of gaseous fluid derived from a source of gaseous fluid under pressure: a first cooling means comprising a heat exchanger adapted to pass the compressed fluid in heat exchange relation to other fluid.

2,840,261. VACUUM RELEASE MECHANISM FOR REFRIGERATED CABINET. Robert L. Eichhorn and Richard D. Verdick, Evansville, Ind., assignors to Whirlpool Corp.



In a combined refrigerator latch mechanism and air pressure release, the combination of a hook shaped strike to be carried by a refrigerator having a door with an outer panel adjacent a door opening, said strike having a transverse retaining shoulder and a beveled camming shoulder.

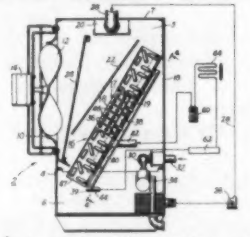
2,840,274. BEVERAGE DISPENSING APPARATUS. Leslie Arnett and William G. Freise, Chicago, Ill., assignors to Square Mig. Co.



1. In a beverage dispensing machine having ingredient containing means in a refrigerated ingredient housing, ingredient handling apparatus of the character described, comprising: a panel forming a part of said housing and movable between closed and open positions; yieldable conduit means in the housing for conducting ingredient from the containing means.

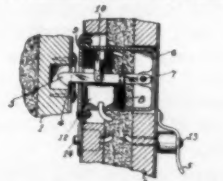
2,840,352. EVAPORATIVE CONDENSER. Madan L. Ghal, Manchester,

and Cecil Bolling, West Hartford, Conn., assignors to Dunham-Bush, Inc., West Hartford, Conn.



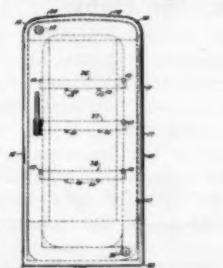
1. In a refrigeration system, an evaporative condenser assembly comprising, a casing having air inlet and outlet openings to permit transverse air flow, an evaporative condenser coil positioned within said casing and extending at an angle to the horizontal and across the path of said air flow.

2,840,405. ELECTRICALLY CONTROLLED REFRIGERATOR DOOR. Urban J. Feltz, St. Louis, Mo., and Charles C. Bonn, East St. Louis, Ill.



The combination with a refrigerator having a normally-closed latch-controlled door with a door handle movably mounted thereon, of an electromagnet cooperable with said latch to shiftably release the same to permit the opening of said door.

2,840,433. REFRIGERATOR DOORS AND DOOR SHELVES. William E. Richard and Thomas G. Schettlin, assignors to Whirlpool Corp.



A refrigerator cabinet door panel which is outwardly bowed from the cabinet and inwardly recessed for shelves, and which comprises an integral insulating panel of sheet material.

(To Be Continued)

U.I. & A.S.M.E. WATER-COOLED CONDENSERS and **LIQUID RECEIVERS** for **EVERY REQUIREMENT**

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6034 W. North Ave.
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RATES for "Positions Wanted" \$7.50 per insertion. Limit 50 words. 15¢ per word over 50.

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By Frank J. Versagi, Technical Editor

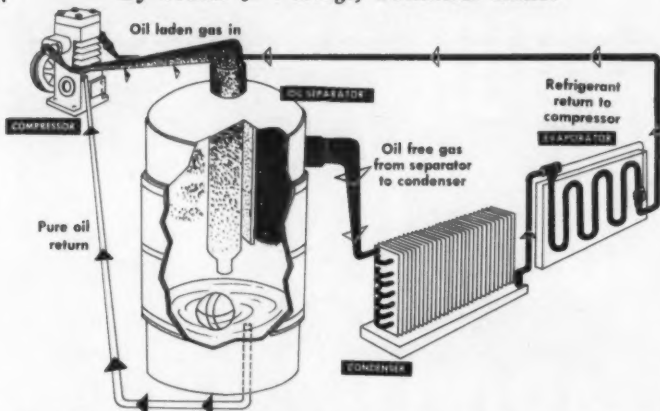


FIG. 3—Schematic showing location of oil separator in circuit and flow of oil and refrigerant.

(Courtesy Temprite Products)

Oil Separators (2)

According to one manufacturer of oil separators, "It is difficult to conceive a refrigerating system which will not benefit from the addition of an oil separator."

And, in fact, separators are made for units as small as 1/8 hp.

A highly qualified instructor, on the other hand, insists that "The use of an oil separator will not prevent trouble if something is wrong with oil distribution; the separator will only postpone the trouble."

What are the advantages claimed for an oil separator—other than its auxiliary function as a sound muffler? Placed

between the compressor and condenser (Fig. 3):

First, and admittedly most important, the oil separator protects a compressor against loss of oil. Since sludge in the oil is trapped before the oil returns to the compressor, danger of scoring cranks, pins, and cylinders is reduced. All this should lead to a longer life expectancy for the compressor.

Second, oil laden refrigerant will behave erratically at the expansion device. Should the oil be carrying sludge and wax, the expansion device can be made inoperative. The oil separator is designed to keep the oil from reaching the expansion device.

Third, when oil enters the

high side—condenser and receiver—power consumption increases, condensing temperatures and pressures may rise, and an over-all reduction in efficiency is observed.

Fourth, oil in the evaporator can cause a loss in heat transfer up to 20%.

Difference Couldn't Be Measured

There are those who will challenge points three and four. One engineer from a reputable manufacturer of large tonnage equipment cites an installation where they removed half a barrel of oil from the high and low side of a system, but observed no change in efficiency.

"It made us wonder," he said, "at just how theoretical our heat transfer ideas are. Sure, there had to be a difference in heat transfer between the time oil was in the evaporator and condenser and when it was removed. But we couldn't measure the difference even after removing gallons of oil."

Findings of some research groups indicate that use of an oil separator on R-22 systems can help keep the per cent of oil circulating with the refrigerant down to less than 1%. These studies, however, concern themselves more with the problem of oil return than with the actual effect of the circulating oil on the system.

There is no doubt of the efficacy of oil separators on low temperature refrigeration, and such texts as ASRE's Data Book recognize their use. In fact, manufacturers of oil separators find their acceptance in low temperature work somewhat of a disadvantage when attempting to sell other markets.

Advantages Not Limited To Low-Temp Uses

"The advantages of oil separators are definitely not restricted to low temperature applications," insists J. W. Archibald, sales manager of Temprite Products Corp.

When we consider the lowering of oil level in the compressor crankcase, there is the argument that of all the oil in a system, only a very small amount actually functions as a lubricant; the rest is primarily a coolant.

Thus, it is reasoned, losing a little oil in the high and low sides is not very serious.

One manufacturer's classroom is equipped with the familiar training aid making use of transparent evaporator and condenser coils. On the subject of oil return, the instructor demonstrates by shutting the unit down, allowing oil to settle in the evaporator.

Then he starts up the unit again and shows the oil being pushed through the evaporator, back to the compressor.

People who think like this instructor will add extra oil to a unit, if piping is extensive enough to create a possibility of lowering crankcase oil level. Their objection stems largely from a reluctance to add any component to a system unless it is unavoidable.

On the subject of erratically operating expansion valves, there isn't very much argument about the harmful effect of oil. However, the anti-oil separator group hold that excessive oil

circulation should be corrected at the source—in the compressor or in correct line sizing and oil traps—rather than by adding another component to the line.

To which proponents of oil separators answer that many systems have been engineered to the best of man's ability and have still needed oil separators.

Except for those who fear that oil separators may, on occasion, cause a slug-back of refrigerant to the compressor or

foaming and reduced lubrication, there is no real thought that oil separators are harmful; it's just that some people consider them unnecessary.

Nevertheless, thousands of oil separators are sold annually; highly-experienced engineers recommend their use in both normal and low temperature work.

There is no doubt but that there are problems to which oil separators supply a solution.

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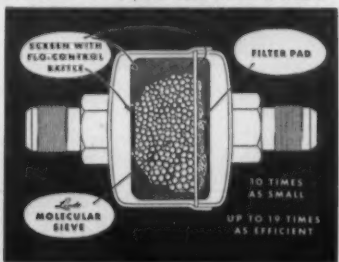
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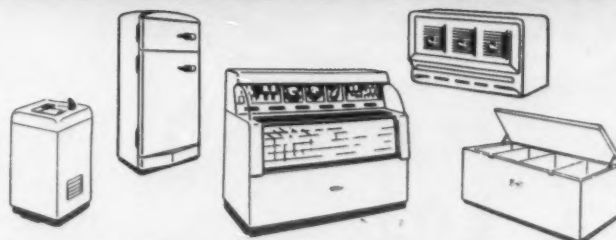
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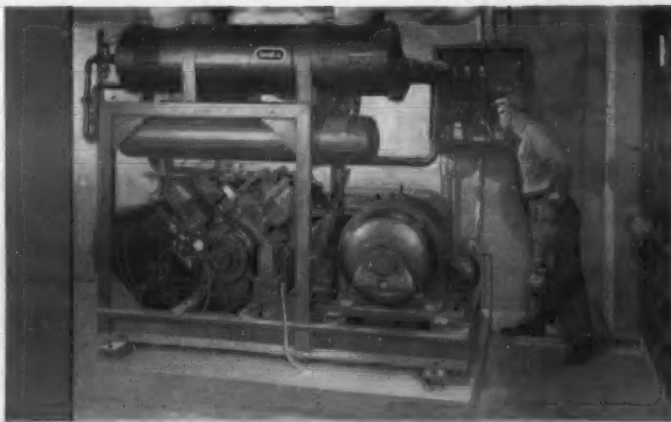
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